

UNITED STATES PATENT AND TRADEMARK OFFICE  
**CERTIFICATE OF CORRECTION**

PATENT NO. : 7,316,847 B2  
APPLICATION NO. : 10/976441  
DATED : January 8, 2008  
INVENTOR(S) : David F. MacNeil

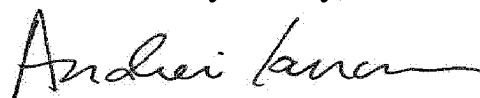
Page 1 of 1

It is certified that error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

In the Specification

Column 2, Line 37, replace "contusion" with --coextrusion--  
Column 3, Line 1, replace "contusion" with --coextrusion--  
Column 3, Line 23, replace "contusion" with --coextrusion--  
Column 3, Line 38, replace "contusion" with --coextrusion--  
Column 10, Line 44, replace "contusion" with --coextrusion--  
Column 11, Line 34, replace "contusion" with --coextrusion--  
Column 11, Line 45, replace "contusion" with --coextrusion--  
Column 12, Line 6, replace "contusion" with --coextrusion--  
Column 19, Line 40, replace "SUBS" with --SUVs--

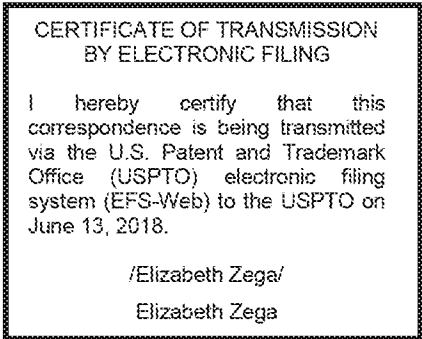
Signed and Sealed this  
Tenth Day of July, 2018



Andrei Iancu  
*Director of the United States Patent and Trademark Office*

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

In re the application of: MacNeil IP LLC  
 Application Number: 10/976,441  
 Filed: October 29, 2004  
 Patent Number: 7,316,847 B2  
 Issue Date: January 8, 2008



For: VEHICLE FLOOR TRAY

Commissioner for Patents  
 Office of Data Management  
 Attention: Certificates of Correction Branch  
 P.O. Box 1450  
 Alexandria, VA 22313-1450

**REQUEST FOR EXPEDITED ISSUANCE OF CERTIFICATE OF  
 CORRECTION UNDER 37 CFR § 1.322**

Dear Sir:

1. The above-captioned patent (the "Patent") was assigned to the owner of record, MacNeil IP LLC. This assignment was recorded April 6, 2010 at Reel 024233, Frame 0977.
2. The undersigned is the Attorney of Record for the Patent.
3. The subject matter of the Patent in general concerns the thermoforming of a vehicle floor tray out of a multiple-layer sheet of plastic. These layers are formed ("extruded") together. The sheet of polymeric or plastic material is said (in various places in the Specification as filed) to be "coextruded", meaning that that there are at least two adjacent layers, or "triextruded", meaning that there are three adjacent layers. A sheet of material having two layers may be referred to as a

“coextrusion” and a sheet of material having three layers may be referred to as a “triextrusion”. The ability of two such layers to stick together is sometimes discussed as their “coextrusion compatibility.”

4. Claims 1, 7, 13, 18, 21, 24, 28, 34 and 39 of the Patent as issued all use the word “coextruded”, as they should.

5. However, the undersigned recently discovered that the Specification as printed uses the word “contusion” in each place where the word “coextrusion” should appear. This of course makes no sense given the subject matter of the Patent.

6. The undersigned inspected the specification of the application as filed, by downloading a copy of it from PAIR. In each place where “contusion” was printed in the Patent, the Applicant had typed the word “coextrusion.”

7. The Patent owner attaches, as Exhibit A to this Request, selected pages of the Specification as filed. The Patent owner has underlined each instance in which the word “coextrusion” appeared in the original Specification.

8. The Specification was amended by the Applicant in a Reply to Office Action filed April 9, 2007. Nonetheless, Applicant made no amendments to the Specification that would have changed the word “coextrusion” to “contusion”.

9. Except for Applicant’s amendment described above, the condition of the Specification as initially filed was the same as the condition of the Specification at the time the Examiner allowed the application on October 10, 2007. No further amendments were made to the Specification after the Notice of Allowance or after the payment of the issue fee.

10. It is the Patent owner’s theory that “contusion” was uniformly substituted for “coextrusion” at the printer.

11. In like manner, it appears that the printer substituted “SUBS” for “SUVs” at Col. 19, line 40. In Exhibit A, the Patent owner includes the page of specification where “SUVs” was originally written. It is clear from the context of the Specification that Applicant meant “sport utility vehicles” and not “submarines”.

12. The patent owner submits herewith a draft Certificate of Correction, noting, by Column and line, each place in the Specification where “contusion” should be corrected to –coextrusion–. The draft Certificate of Correction also seeks to correct “SUBS” to –SUVs–.

13. From the foregoing, it can be seen that the above-recited errors were not the mistake of the Applicant but rather, and unequivocally, were solely the errors of the Office.

14. The Patent owner therefore respectfully requests that the Office issue a Certificate of Correction and that the Office do this on an expedited basis.

No fee is thought to be due in conjunction with this submission. Nonetheless, the Commissioner is hereby authorized to charge Deposit Account No. 506166 of Perkins IP Law Group LLC to cover any fee deficiency.

Respectfully submitted,

/Jefferson Perkins/  
Jefferson Perkins  
Registration No. 31,407

**CUSTOMER NO. 115904**

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# EXHIBIT A

ability to retain snow-melt and the like, until the water evaporates or can be disposed of by the vehicle owner or user. One advanced design places treads in the middle of the reservoir, such that the feet of the occupant are held above any fluid that the reservoir collects. But including such a reservoir within a floor tray that otherwise has an acceptable fit to the surface of a vehicle foot well has not yet been done, since there are problems in incorporating a three-dimensional liquid-holding vessel into a product that ideally conforms, on its lower surface, to the surface of the foot well. Further, a reservoir which collects drip water from a large surface, such as a vehicle floor tray, will exhibit more problems in keeping the collected fluid from sloshing about in a moving vehicle.

[0006] Conventional vehicle floor mats and trays are molded from a single rubber or plastic material. The selection of this material is controlled by its cost, its resistance to shear forces, its tensile strength, its abrasion resistance, its ability to conform to the surface of the vehicle foot well, its sound-deadening properties and how slippery or nonslippery it is relative to the occupants' feet, with nonslipperiness (having a relatively high coefficient of friction) being advantageous. Often the designer must make tradeoffs among these different design constraints in specifying the material from which the tray or mat is to be made.

#### SUMMARY OF THE INVENTION

[0007] According to one aspect of the invention, there is provided a vehicle floor cover, mat or tray which is removably installable by a consumer and which is formed of at least three layers that are bonded together, preferably by coextrusion. The three layers include a central layer whose composition is distinct from a bottom layer and a top layer. Preferably, all three layers are formed of thermoplastic polymer materials. In another aspect of the invention, the top layer exhibits a kinetic coefficient of friction with respect to a sample meant to emulate a typical shoe outsole (neoprene rubber, Shore A Durometer 60) of at least about 0.82.

[0008] Preferably, a major portion of the central layer is a polyolefin. More preferably, the polyolefin is either a polypropylene or a polyethylene. Most preferably, the polyolefin is high molecular weight polyethylene (HMPE) as herein defined. In an alternative embodiment, the central layer can be a styrene-acrylonitrile copolymer (SAN) or an acrylonitrile-butadiene-styrene (ABS) polymer blend.

[0009] Preferably, a major portion of the top layer is a thermoplastic elastomer, such as one of the proprietary compositions sold under the trademarks SANTOPRENE®, GEOLAST® and VYRAM®. VYRAM® is particularly preferred. In another embodiment, a major portion of the top layer can be an ABS polymer blend. Where ABS is used in both the top and central layers, it is preferred that the amount of the polybutadiene phase in the top layer be greater than the amount of this phase in the central layer.

[0010] It is further preferred that a major portion of the bottom layer likewise be a thermoplastic elastomer, and conveniently it can be, but does not have to be, of the same composition as the major portion of the top layer.

[0011] Preferably one or more of the layers is actually a polymer blend, in which a minor portion is preselected for its coextrusion compatibility with the adjacent layer(s). Thus, a minor portion of the top and bottom layers can consist of a polyolefin, while a minor portion of the central layer can consist of a thermoplastic elastomer. In each case, it is preferred that the minor portion be no more than about one part in four by weight of each layer, or a weight ratio of 1:3. Where all three layers are preselected to be ABS blends, the amount of polybutadiene preferably is decreased in the central layer relative to the top and bottom layers.

[0012] While the preferred embodiment of the vehicle floor cover consists of three integral layers, any one of the recited layers can in fact be made up of two or more sublayers, such that the total number of sublayers in the resultant mat or tray can exceed three.

[0013] In another embodiment, the thermoplastic elastomer constituent of the top, central and/or bottom layers described above can be replaced with a natural or synthetic rubber, including styrene butadiene rubber, butadiene rubber, acrylonitrile butadiene rubber (NBR) or ethylene propylene rubber (EPDM).

[0014] According to a related aspect of the invention, a vehicle floor cover is provided that has three layers bonded together, preferably by coextrusion. Major portions of the top and bottom layer consist of thermoplastic elastomer(s). The top and bottom layers have compositions distinct from the central layer, which can be chosen for its relatively low expense. It is preferred that a major portion of the central layer be a polyolefin and that major portions of the top and bottom layers be one or more thermoplastic elastomers. The polyolefin may be selected from the group consisting of polypropylene and polyethylene, and preferably is a high molecular weight polyethylene (HMPE). The thermoplastic elastomer can, for example, be SANTOPRENE®, GEOLAST® or VYRAM®, with VYRAM® being particularly preferred. It is also preferred that each of the layers be a polymer blend, with a minor portion of each layer being chosen for its coextrusion compatibility with adjacent layers. For example, the top and bottom layers can consist of a 3:1 weight ratio of VYRAM®/HMPE, and the central layer of a 3:1 weight ratio of HMPE/VYRAM®.

[0015] In an embodiment alternative to the one above, the top and bottom layers can consist of ABS polymer blends and the central layer can consist of SAN or an ABS in which the polybutadiene phase is present in a smaller concentration than in the top and bottom layers.

tactile properties, its relatively high static and dynamic coefficients of friction with respect to typical footwear, and its resistance to chemical attack from road salt and other substances into which it may come into contact. Top layer 600 preferably includes a major portion of a thermoplastic elastomer such as VYRAM®, SANTOPRENE® or GEOLAST®, which are proprietary compositions available from Advanced Elastomer Systems. VYRAM® is preferred, particularly Grade 101-75 (indicating a Shore A hardness of 75). An upper surface 606 of the top layer 600 may be textured by a “haircell” pattern or the like so as to provide a pleasing tactile feel and visual appearance, as may a lower surface of the bottom layer 604.

[0059] It is preferred that top layer 600 be a polymer blend, in which instance a minor portion of the composition of the top layer 600 is selected for its coextrusion compatibility with core layer 602. A polyolefin polymer is preferred, such as polypropylene or more preferably polyethylene, even more particularly a high molecular weight polyethylene (HMPE). As used herein, HMPE is a commodity product, available from many sources, and distinguished in the industry from low density polyethylene (LDPE) and high density polyethylene (HDPE) by its approximate properties:

Characteristic	LDPE	HDPE	HMPE
Specific Gravity, ASTM D-792	0.918	0.96	0.95
Tensile Modulus, ASTM D-638, psi	22,500	95,000	125,000
Tensile Strength @ Yield, ASTM D-638, psi	1,800	4,500	3,600 – 3,700
Flexural Modulus, ASTM D-790, psi		225,000	165,000 – 175,000
Hardness, ASTM D-2240, Shore D	45	66	68

[0060] In the above table, the testing methods by which the properties are determined are given for the purpose of reproducibility.

[0061] Particularly where the thermoplastic elastomer and the polyolefin are respectively selected as VYRAM® and HMPE, the proportion by weight of the thermoplastic elastomer to polyolefin material in layer 600 is preferably selected to be about 3:1. It has been discovered

that some polyolefin material needs to be present in layer 600 for coextrusion compatibility with central layer 602, in the instance where a major portion of the layer 602 is also a polyolefin.

[0062] In an alternative embodiment, the thermoplastic elastomer component of the top layer 600 may be replaced with an elastomer such as natural rubber, acryl-nitrile butadiene rubber (NBR), styrene butadiene rubber (SBR), or ethylene propylene diene rubber (EPDM).

[0063] In a further alternative embodiment, layer 600 can be an acrylonitrile butadiene styrene (ABS) blend. ABS is a material in which submicroscopic particles of polybutadiene are dispersed in a phase of styrene acrylonitrile (SAN) copolymer. For layer 600, the percentage by weight of polybutadiene, which lends elastomeric properties to the material, should be chosen as relatively high.

[0064] The core or central layer 602 preferably is composed of a thermoplastic polymer material that is selected for its toughness, stiffness and inexpensiveness rather than its tactile or frictional properties. Preferably a major portion of it is a polyolefin such as polypropylene or polyethylene. More preferably, a major portion of the layer 602 is composed of HMPE as that material has been defined above.

[0065] It is preferred that the central layer 602 be a blend, and in that instance a minor portion of layer 602 is composed of a material selected for its coextrusion compatibility with top layer 600 (and bottom layer 604 described below). In the illustrated embodiment, this minor portion is a thermoplastic elastomer such as SANTOPRENE®, GEOLAST® or VYRAM®. VYRAM® Grade 101-75 is particularly preferred. For layer 602, and particularly where the polyolefin and the thermoplastic elastomer are respectively selected as HMPE and VYRAM®, the proportion by weight of polyolefin to thermoplastic elastomer is

preferred to be about 3:1. More generally, the percentages of the minor portions in layers 600 and 602 (and layer 604) are selected as being the minimum necessary for good coextrusion compatibility.

[0066] In an alternative embodiment, where layer 600 has been chosen as a polybutadiene-rich layer of ABS, layer 602 is chosen as a grade of ABS having less of a percentage by weight of polybutadiene in it, or none at all (effectively, styrene acrylonitrile copolymer or SAN).

[0067] Bottom layer 604 has a lower surface 300 which will be adjacent the vehicle foot well top surface. Typically, this surface is carpeted. The bottom layer 604 is a thermoplastic polymer material selected for its wear characteristics, as well as its sound-deadening qualities and a yieldability that allows the layer 604 to better grip "hard points" in the vehicle foot well surface as well as conform to foot well surface irregularities. Preferably, a major portion of the layer 604 is composed of a thermoplastic elastomer, such as SANTOPRENE®, GEOLAST® or, preferably, VYRAM®. VYRAM® Grade 101-75 is particularly preferred.

[0068] It is preferred that the bottom layer 604 be a polymer blend. In this instance, a minor portion of the bottom layer 604 is selected for its coextrusion compatibility with the core layer 602. Where core layer 602 is mostly made of a polyolefin material, it is preferred that a polyolefin be used as the minor portion of the bottom layer 604. This polyolefin can be, for example, polypropylene or polyethylene, and preferably is HMPE. The amount of the minor portion is selected to be that minimum amount that assures good coextrusion compatibility. Where the polyolefin and the thermoplastic elastomer are respectively chosen to be HMPE and VYRAM®, it has been found that the thermoplastic elastomer: polyolefin ratio by weight in the layer 604 should be about 3:1.

[0099] The result is a tray data file 708 that is a complete representation of both the upper and lower surfaces of the floor tray, to a precision sufficient to create only a 1/8 in. departure or less from a large portion of the respective surfaces of the vehicle foot well. This data file, typically as translated into a .stl format that approximates surfaces with a large plurality of small triangles, is used at 710 to command a stereolithographic apparatus (SLA). The SLA creates a solid plastic image or model of the design by selectively curing liquid photopolymer using a laser. The SLA is used to determine fit to an actual vehicle foot well and to make any necessary adjustments.

[0100] As modified with experience gained from fitting the SLA, at 712 the vehicle tray data file is used to make a commercial mold for producing the vehicle floor trays or covers. Triextruded sheets or blanks 714 are placed in the mold and heated to produce the vehicle floor trays at 716.

[0101] Three-dimensional vehicle floor trays for many different vehicle models can be quickly and accurately manufactured using this method. The method can also be modified to produce double trays, in which a single tray is provided which covers both driver and passenger vehicle foot wells as well as the intervening transmission tunnel. The technique can be used to create other vehicle floor covers as well, such as the liners used in the cargo areas of minivans and SUVs.

[0102] In summary, a novel vehicle floor tray has been shown and described which fits, within tight tolerances, to the vehicle foot well for which it is created. The floor tray according to the invention includes a reservoir and channel system for retaining runoff in a way that will not slosh around in the foot well. By using a triextruded sheet blank, the tray combines the desirable coefficient of friction and yieldability characteristics of a



## UNITED STATES PATENT AND TRADEMARK OFFICE CERTIFICATE OF CORRECTION

Page 1 of 1

PATENT NO. : 7,316,847 B2

APPLICATION NO.: 10/976,441

ISSUE DATE : January 8, 2008

INVENTOR(S) : David F. MACNEIL

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

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 Column 12, line 6, replace "contusion" with -coextrusion--  
 Column 19, line 40, replace "SUBS" with -SUVs--

MAILING ADDRESS OF SENDER (Please do not use Customer Number below):

Perkins IP Law Group LLC, 4200 Commerce Court, Suite 310, Lisle, Illinois 60532

This collection of information is required by 37 CFR 1.322, 1.323, and 1.324. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1.0 hour to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: **Attention Certificate of Corrections Branch, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

MacNeil Exhibit 2002

Yita v. MacNeil IP, IPR2020-01138

Page 13

## Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	32888249
<b>Application Number:</b>	10976441
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	2133
<b>Title of Invention:</b>	VEHICLE FLOOR TRAY
<b>First Named Inventor/Applicant Name:</b>	David F. MacNeil
<b>Customer Number:</b>	115904
<b>Filer:</b>	Jefferson Perkins/Elizabeth Zega
<b>Filer Authorized By:</b>	Jefferson Perkins
<b>Attorney Docket Number:</b>	31700.0069
<b>Receipt Date:</b>	13-JUN-2018
<b>Filing Date:</b>	29-OCT-2004
<b>Time Stamp:</b>	15:29:40
<b>Application Type:</b>	Utility under 35 USC 111(a)

### Payment information:

Submitted with Payment	no
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### File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Request for Certificate of Correction	RequestCertCorrOfficeMistake withExhibitA.pdf	5097290  <small>b02a6575e324a513afcb3f2b7540cd87a99e9547</small>	no	11

### Warnings:

MacNeil Exhibit 2002

Yita v. MacNeil IP, IPR2020-01138

Information:					
2	Request for Certificate of Correction	CertificateofCorrection.pdf	153419	no	2
			f41267a15ac758bc3f2b8578b5d016c61112b69c		
Warnings:					
Information:					
Total Files Size (in bytes):				5250709	
<p><b>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b>  <b>If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</b></p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b>  <b>If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</b></p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b>  <b>If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</b></p>					



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United States Patent and Trademark Office  
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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
10/976,441	10/29/2004	David F. MacNeil	31700.000069

**CONFIRMATION NO. 2133**

**POWER OF ATTORNEY NOTICE**

64770  
Perkins IP Law Group LLC  
4200 Commerce Court, Suite 310  
Lisle, IL 60532



Date Mailed: 09/17/2014

**NOTICE REGARDING CHANGE OF POWER OF ATTORNEY**

This is in response to the Power of Attorney filed 08/11/2014.

- The Power of Attorney to you in this application has been revoked by the assignee who has intervened as provided by 37 CFR 3.71. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

/byemane/

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



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10/976,441	10/29/2004	David F. MacNeil	31700.0069

**CONFIRMATION NO. 2133**

**POA ACCEPTANCE LETTER**



115904  
Perkins IP Law Group LLC  
4200 Commerce Court  
Suite 310  
Lisle, IL 60532

Date Mailed: 09/17/2014

**NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY**

This is in response to the Power of Attorney filed 08/11/2014.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

*/byemanc/*

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101



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Table with 6 columns: APPLICATION NUMBER, FILING or 371(c) DATE, GRP ART UNIT, FIL FEE REC'D, ATTY. DOCKET NO, TOT CLAIMS, IND CLAIMS. Row 1: 10/976,441, 10/29/2004, 1773, 1579, 31700.0069, 84, 10

CONFIRMATION NO. 2133

CORRECTED FILING RECEIPT



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Perkins IP Law Group LLC
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Lisle, IL 60532

Date Mailed: 09/17/2014

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections

Inventor(s)

David F. MacNeil, Hinsdale, IL;

Applicant(s)

David F. MacNeil, Hinsdale, IL;

Power of Attorney: The patent practitioners associated with Customer Number 115904

Domestic Applications for which benefit is claimed - None.

A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.

Foreign Applications for which priority is claimed (You may be eligible to benefit from the Patent Prosecution Highway program at the USPTO. Please see http://www.uspto.gov for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

If Required, Foreign Filing License Granted: 12/09/2004

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is US 10/976,441

Projected Publication Date: Not Applicable

Non-Publication Request: No

Early Publication Request: No

**Title**

VEHICLE FLOOR TRAY

**Preliminary Class**

428

**Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No**

**PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES**

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).



**LICENSE FOR FOREIGN FILING UNDER**  
**Title 35, United States Code, Section 184**  
**Title 37, Code of Federal Regulations, 5.11 & 5.15**

**GRANTED**

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

**NOT GRANTED**

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

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***SelectUSA***

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

In re the application of: MacNeil IP LLC  
Application Number: 10/976,441  
Filed: October 29, 2004  
Patent Number: 7,316,847 B2  
Issue Date: January 8, 2008  
Confirmation Number: 2133  
For: VEHICLE FLOOR TRAY

CERTIFICATE OF TRANSMISSION  
BY ELECTRONIC FILING

I hereby certify that this correspondence is being transmitted via the U.S. Patent and Trademark Office (USPTO) electronic filing system (EFS-Web) to the USPTO on August 11, 2014.

/Patricia Romanelli/  
Patricia Romanelli

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**NOTIFICATION OF LOSS OF ENTITLEMENT TO  
SMALL ENTITY STATUS UNDER 37 CFR § 1.27(g)(2)**

Dear Sir:

This communication serves as notification of a loss of entitlement to small entity status of the owner of the above identified application under 37 CFR § 1.27(g)(2).

No fee is thought to be due in connection with this submission. Nonetheless, the Commissioner is hereby authorized to charge any deficiency relating to this submission to Deposit Account No. 506166 of Perkins IP Law Group LLC.

Respectfully submitted,

/Jefferson Perkins/  
Jefferson Perkins  
Registration No. 31,407

**CUSTOMER NO. 115904**

PERKINS IP LAW GROUP LLC  
4200 Commerce Court, Suite 310  
Lisle, Illinois 60532  
Telephone: (630) 505-1305  
Fax: (630) 505-1312  
Email: [jperkins@perkinsip.com](mailto:jperkins@perkinsip.com)

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

In re the patent of:           MacNeil IP LLC  
Patent No.:                    7,316,847 B2  
Issue Date:                    January 8, 2008  
Title:                         VEHICLE FLOOR TRAY

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**REVOCAION OF POWER OF ATTORNEY, APPOINTMENT OF NEW ATTORNEYS  
AND CERTIFICATE UNDER 37 C.F.R. §3.73(c)**

I, David F. MacNeil, am the Manager of MacNeil IP LLC, a limited liability company duly organized and existing under the laws of the State of Illinois (“Owner”). The Owner is the assignee and owner of the entire right, title and interest in the above-identified patent (“Patent”) by virtue of an assignment from the inventor of this Patent, U.S. Patent No. 7,316,847 B2 issued January 8, 2008. As evidence of this assignment, the Owner points to the Assignment recorded at Reel 024233, Frame 0977.

As the Manager of Owner the undersigned is authorized to act on behalf of Owner and has full power to grant and revoke powers of attorney.

Owner hereby revokes all previously granted powers of attorney.

Owner hereby appoints Practitioners associated with Customer Number 115904 as its attorneys to prosecute this Patent Application and to transact all business in the U.S. Patent and Trademark Office connected with the Patent Application and with any resulting patent, said attorneys being of the firm of Perkins IP Law Group LLC, with full power of substitution and



## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	19834184
<b>Application Number:</b>	10976441
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	2133
<b>Title of Invention:</b>	VEHICLE FLOOR TRAY
<b>First Named Inventor/Applicant Name:</b>	David F. MacNeil
<b>Customer Number:</b>	64770
<b>Filer:</b>	Jefferson Perkins/Patricia Romanelli
<b>Filer Authorized By:</b>	Jefferson Perkins
<b>Attorney Docket Number:</b>	31700.000069
<b>Receipt Date:</b>	11-AUG-2014
<b>Filing Date:</b>	29-OCT-2004
<b>Time Stamp:</b>	17:32:45
<b>Application Type:</b>	Utility under 35 USC 111(a)

### Payment information:

Submitted with Payment	no
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### File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Notification of loss of entitlement to small entity status	NotOfLossOfSmEntStatus.pdf	122017 <small>f70fd1b08a8da970fd0b286ddfa7ec4736d38e1a3</small>	no	2

### Warnings:

### Information:

MacNeil Exhibit 2002

Yita v. MacNeil IP, IPR2020-01138

2	Power of Attorney	RevAndPOA0069.pdf	78043 6af5362e667e8966c247e5230a288e3b46dabc8	no	2
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**Warnings:**

**Information:**

<b>Total Files Size (in bytes):</b>	200060
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**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**



APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/976,441	01/08/2008	7316847	31700.000069	2133

64770 7590 12/19/2007  
Momkus McCluskey, LLC  
3051 Oak Grove Road  
Suite # 220  
Downers Grove, IL 60515-1181

### ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

#### **Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)** (application filed on or after May 29, 2000)

The Patent Term Adjustment is 37 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

David F. MacNeil, Hinsdale, IL;



**PART B - FEE(S) TRANSMITTAL**

Complete and send this form, together with applicable fee(s), to: **Mail** **Mail Stop ISSUE FEE**  
**Commissioner for Patents**  
**P.O. Box 1450**  
**Alexandria, Virginia 22313-1450**  
**or Fax (571)-273-2885**

**INSTRUCTIONS:** This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

64770 7590 10/10/2007

**MOMKUS MCCLUSKEY MONROE MARSH & SPYRATOS, L**  
**3051 OAK GROVE ROAD**  
**SUITE 220**  
**DOWNERS GROVE, IL 60515-1181**

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

**Certificate of Mailing or Transmission**

I hereby certify that this Fee Transmittal is being transmitted via the USPTO electronic filing system in accordance with 37 CFR §1.6(a)(4) on the date below:

Patty Romanelli	(Depositor's name)
/Patty Romanelli/	(Signature)
November 21, 2007	(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/976,441	10/29/2004	David F. MacNeil	31700.000069	2133

TITLE OF INVENTION: VEHICLE FLOOR TRAY

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$720	\$300	\$0	\$1020	01/10/2008

EXAMINER	ART UNIT	CLASS-SUBCLASS
ROBINSON, ELIZABETH A	1773	428-515000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).  
 Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.  
 "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list  
 (1) the names of up to 3 registered patent attorneys or agents OR, alternatively,  
 (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Momkus McCluskey, LLC  
 2 Jefferson Perkins  
 3 \_\_\_\_\_

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)  
 PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.  
 (A) NAME OF ASSIGNEE \_\_\_\_\_ (B) RESIDENCE: (CITY and STATE OR COUNTRY) \_\_\_\_\_

Please check the appropriate assignee category or categories (will not be printed on the patent):  Individual  Corporation or other private group entity  Government

4a. The following fee(s) are submitted:  
 Issue Fee  
 Publication Fee (No small entity discount permitted)  
 Advance Order - # of Copies \_\_\_\_\_

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)  
 A check is enclosed.  
 Payment by credit card. Form PTO-2038 is attached.  
 The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number 503982 (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)  
 a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.  b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature /Jefferson Perkins/ Date November 21, 2007  
 Typed or printed name Jefferson Perkins Registration No. 31407

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

## Electronic Patent Application Fee Transmittal

<b>Application Number:</b>	10976441
<b>Filing Date:</b>	29-Oct-2004
<b>Title of Invention:</b>	VEHICLE FLOOR TRAY
First Named Inventor/Applicant Name:	David F. MacNeil
<b>Filer:</b>	Jefferson Perkins/Patricia Romanelli
<b>Attorney Docket Number:</b>	31700.000069

Filed as Small Entity

### Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
<b>Basic Filing:</b>				
<b>Pages:</b>				
<b>Claims:</b>				
<b>Miscellaneous-Filing:</b>				
<b>Petition:</b>				
<b>Patent-Appeals-and-Interference:</b>				
Post-Allowance-and-Post-Issuance:				
Utility Appl issue fee	2501	1	720	720
Publ. Fee- early, voluntary, or normal	1504	1	300	300

MacNeil Exhibit 2002  
Yita v. MacNeil IP, IPR2020-01138

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
<b>Extension-of-Time:</b>				
<b>Miscellaneous:</b>				
<b>Total in USD (\$)</b>				<b>1020</b>

## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	2498006
<b>Application Number:</b>	10976441
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	2133
<b>Title of Invention:</b>	VEHICLE FLOOR TRAY
<b>First Named Inventor/Applicant Name:</b>	David F. MacNeil
<b>Customer Number:</b>	64770
<b>Filer:</b>	Jefferson Perkins/Patricia Romanelli
<b>Filer Authorized By:</b>	Jefferson Perkins
<b>Attorney Docket Number:</b>	31700.000069
<b>Receipt Date:</b>	21-NOV-2007
<b>Filing Date:</b>	29-OCT-2004
<b>Time Stamp:</b>	12:21:05
<b>Application Type:</b>	Utility under 35 USC 111(a)

### Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	\$ 1020
RAM confirmation Number	6719
Deposit Account	503982
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees) MacNeil-Ex-108-2002

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees) Yita v. MacNeil JP, IPR2020-01138

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

### File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	FeeTransmittal1.pdf	90038 34a7253a6ebff3eb2f6da4e9302017126 9af4e4f	no	1

### Warnings:

### Information:

2	Fee Worksheet (PTO-06)	fee-info.pdf	8270 25a872109b3b0e8254e13cod3c7299a 81e205c61	no	2
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### Warnings:

### Information:

**Total Files Size (in bytes):** 98308

**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

#### **New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

#### **National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

#### **New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**



NOTICE OF ALLOWANCE AND FEE(S) DUE

64770 7590 10/10/2007

MOMKUS MCCLUSKEY MONROE MARSH & SPYRATOS, LLC
3051 OAK GROVE ROAD
SUITE 220
DOWNERS GROVE, IL 60515-1181

EXAMINER: ROBINSON, ELIZABETH A
ART UNIT: 1773
PAPER NUMBER:
DATE MAILED: 10/10/2007

Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
Row 1: 10/976,441, 10/29/2004, David F. MacNeil, 31700.000069, 2133
TITLE OF INVENTION: VEHICLE FLOOR TRAY

Table with 7 columns: APPLN. TYPE, SMALL ENTITY, ISSUE FEE DUE, PUBLICATION FEE DUE, PREV. PAID ISSUE FEE, TOTAL FEE(S) DUE, DATE DUE
Row 1: nonprovisional, YES, \$720, \$300, \$0, \$1020, 01/10/2008

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

- A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.
B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

- A. Pay TOTAL FEE(S) DUE shown above, or
B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

**PART B - FEE(S) TRANSMITTAL**

Complete and send this form, together with applicable fee(s), to: **Mail** **Mail Stop ISSUE FEE**  
**Commissioner for Patents**  
**P.O. Box 1450**  
**Alexandria, Virginia 22313-1450**  
**or Fax (571)-273-2885**

**INSTRUCTIONS:** This form should be used for transmitting the **ISSUE FEE** and **PUBLICATION FEE** (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

64770 7590 10/10/2007

**MOMKUS MCCLUSKEY MONROE MARSH & SPYRATOS, LLC**  
 3051 OAK GROVE ROAD  
 SUITE 220  
 DOWNERS GROVE, IL 60515-1181

**Certificate of Mailing or Transmission**  
 I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/976,441	10/29/2004	David F. MacNeil	31700.000069	2133

TITLE OF INVENTION: VEHICLE FLOOR TRAY

APPLN. TYPE	SMALL ENTITY	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	YES	\$720	\$300	\$0	\$1020	01/10/2008

EXAMINER	ART UNIT	CLASS-SUBCLASS
ROBINSON, ELIZABETH A	1773	428-515000

<p>1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).</p> <p><input type="checkbox"/> Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.</p> <p><input type="checkbox"/> "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.</p>	<p>2. For printing on the patent front page, list</p> <p>(1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____</p> <p>(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____</p> <p>3 _____</p>
--	---

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE \_\_\_\_\_ (B) RESIDENCE: (CITY and STATE OR COUNTRY) \_\_\_\_\_

Please check the appropriate assignee category or categories (will not be printed on the patent):  Individual  Corporation or other private group entity  Government

<p>4a. The following fee(s) are submitted:</p> <p><input type="checkbox"/> Issue Fee</p> <p><input type="checkbox"/> Publication Fee (No small entity discount permitted)</p> <p><input type="checkbox"/> Advance Order - # of Copies _____</p>	<p>4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)</p> <p><input type="checkbox"/> A check is enclosed.</p> <p><input type="checkbox"/> Payment by credit card. Form PTO-2038 is attached.</p> <p><input type="checkbox"/> The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).</p>
---	--

5. Change in Entity Status (from status indicated above)

a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27.  b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

Authorized Signature \_\_\_\_\_ Date \_\_\_\_\_

Typed or printed name \_\_\_\_\_ Registration No. \_\_\_\_\_

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

MacNeil Exhibit 2002

Yita v. MacNeil IP, IPR2020-01138



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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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Table with 5 columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
10/976,441 10/29/2004 David F. MacNeil 31700.000069 2133

EXAMINER
ROBINSON, ELIZABETH A

64770 7590 10/10/2007
MOMKUS MCCLUSKEY MONROE MARSH & SPYRATOS, LLC
3051 OAK GROVE ROAD
SUITE 220
DOWNERS GROVE, IL 60515-1181

ART UNIT PAPER NUMBER
1773

DATE MAILED: 10/10/2007

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 37 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 37 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.



**Notice of Allowability**

<b>Application No.</b> 10/976,441	<b>Applicant(s)</b> MACNEIL, DAVID F.
<b>Examiner</b> Elizabeth Robinson	<b>Art Unit</b> 1773

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

- 1.  This communication is responsive to communications filed on September 26, 2007.
- 2.  The allowed claim(s) is/are 1, 27, 28, 31, 35-38, 40-42, 44, 45 and 87-115.
- 3.  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a)  All   b)  Some\*   c)  None   of the:
    - 1.  Certified copies of the priority documents have been received.
    - 2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    - 3.  Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

- 4.  A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  - 5.  CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a)  including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1)  hereto or 2)  to Paper No./Mail Date \_\_\_\_\_.
    - (b)  including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
- 6.  DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- 1.  Notice of References Cited (PTO-892)
- 2.  Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3.  Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
- 4.  Examiner's Comment Regarding Requirement for Deposit of Biological Material
- 5.  Notice of Informal Patent Application
- 6.  Interview Summary (PTO-413),  
Paper No./Mail Date 20070927.
- 7.  Examiner's Amendment/Comment
- 8.  Examiner's Statement of Reasons for Allowance
- 9.  Other \_\_\_\_\_.

## DETAILED ACTION

### EXAMINER'S AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Jefferson Perkins on September 27, 2007.

The application has been amended as follows:

Claims 86 and 116 are cancelled due to discussion about the structure taught in claim 1 of Churchill et al. (US 4,101,702).

In the first line of claim 35, please insert the wording "the polyolefin of" between the words "wherein" and "the".

In the seventh line of claim 42, please change the word "major" to "minor" and the word "further" to "major".

In the first line of claim 45, please add the number "31" between the words "Claim" and "wherein".

### ***Allowable Subject Matter***

The following is an examiner's statement of reasons for allowance: None of the prior art of record teach or suggest the structures of independent claims 31, 36, 37, 41, 42 and 87. All other claims depend from these independent claims. Independent claims

Art Unit: 1773

31, 37 and 42 require a particular weight ratio of polyolefin to thermoplastic vulcanizate in the core, top and bottom layers, respectively. Independent claims 36 and 41, require that the upper and bottom layers, respectively, contain high molecular weight polyethylene (HMPE). Independent claim 87 requires a specific range of flexural modulus for the floor cover.

The following reference is made of record detailing the closest prior art to the above claims:

U.S. Patent 6,431,629 (Emery) discloses a three layer truck bed liner. There is no additional polyolefin material, and in particular no HMPE, added to thermoplastic vulcanizate of the upper and lower layers of the bed liner. While the core layer can comprise regrind from the trimming process of previously manufactured liners, the amount of thermoplastic vulcanizate in the core layer is insufficient to meet the claimed weight ratio. Using the composition disclosed in Emery, the flexural modulus would be higher than required by the instant claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Robinson whose telephone number is 571-

Art Unit: 1773

272-7129. The examiner can normally be reached on Monday- Friday 8 AM to 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



ear



**CAROL CHANEY**  
**SUPERVISORY PATENT EXAMINER**

<b>Interview Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/976,441	MACNEIL, DAVID F.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Elizabeth Robinson	1773	

All participants (applicant, applicant's representative, PTO personnel):

(1) Elizabeth Robinson. (3) \_\_\_\_\_.

(2) Jefferson Perkins. (4) \_\_\_\_\_.

Date of Interview: 27 September 2007.

Type: a)  Telephonic b)  Video Conference  
c)  Personal [copy given to: 1)  applicant 2)  applicant's representative]

Exhibit shown or demonstration conducted: d)  Yes e)  No.  
If Yes, brief description: \_\_\_\_\_.

Claim(s) discussed: 1-116.

Identification of prior art discussed: US 4,101,702 (Churchill et al.).

Agreement with respect to the claims f)  was reached. g)  was not reached. h)  N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Discussed an Examiner's Amendment. Claims 86 and 116 were cancelled due to Churchill et al. reference. Amendments to claims 35, 42 and 45 were approved.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

\_\_\_\_\_  
Examiner's signature, if required

## Summary of Record of Interview Requirements

### Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

### Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

#### Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

#### 37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,  
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

#### Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

In re the application of: David F. MACNEIL  
 Application Number: 10/976,441  
 Filed: 29 October 2004  
 Art Unit: 3612  
 Examiner: Elizabeth Robinson  
 Confirmation Number: 2133  
 For: VEHICLE FLOOR TRAY

<p>CERTIFICATE OF TRANSMISSION BY ELECTRONIC FILING</p> <p>I hereby certify that this correspondence is being transmitted via the USPTO electronic filing system in accordance with 37 CFR §1.6(a)(4) on the date below:</p> <p style="text-align: center;">26 September 2007 Date</p> <p style="text-align: center;">/Patty Romanelli/ Patty Romanelli</p>
---

Commissioner for Patents  
 P.O. Box 1450  
 Alexandria, VA 22313-1450

*ok to enter*  
*EPR*

**AMENDMENT AFTER FINAL REJECTION**

Dear Madam:

This communication is responsive to the Examiner's Action mailed 27 June 2007.

IN THE CLAIMS

Please amend the claims as shown in the following Claim Listing. In particular, Applicant cancels Claims 25, 30, 33, 46 and 85, amends Claims 1, 27, 31, 35 – 38, 41, 42, 44, 45, 86 and 87, and adds Claims 88 -- 116.

**Notice of References Cited**

Application/Control No. 10/976,441	Applicant(s)/Patent Under Reexamination MACNEIL, DAVID F.	
Examiner Elizabeth Robinson	Art Unit 1773	Page 1 of 1

**U.S. PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-4,101,702	07-1978	Churchill et al.	428/213
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

**FOREIGN PATENT DOCUMENTS**

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

**NON-PATENT DOCUMENTS**

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).) Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.






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BIB DATA SHEET

CONFIRMATION NO. 2133

<b>SERIAL NUMBER</b> 10/976,441	<b>FILING or 371(c) DATE</b> 10/29/2004 <b>RULE</b>	<b>CLASS</b> 280	<b>GROUP ART UNIT</b> 1773	<b>ATTORNEY DOCKET NO.</b> 31700.000069	
<b>APPLICANTS</b> David F. MacNeil, Hinsdale, IL; <b>** CONTINUING DATA *****</b> <b>** FOREIGN APPLICATIONS *****</b> <b>** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** ** SMALL ENTITY **</b> 12/09/2004					
Foreign Priority claimed <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No 35 USC 119(a-d) conditions met <input type="checkbox"/> Yes <input type="checkbox"/> No Verified and /ELIZABETH A ROBINSON/ Acknowledged Examiner's Signature	<input type="checkbox"/> Met after Allowance Initials	<b>STATE OR COUNTRY</b> IL	<b>SHEETS DRAWINGS</b> 12	<b>TOTAL CLAIMS</b> 84	<b>INDEPENDENT CLAIMS</b> 10
<b>ADDRESS</b> MOMKUS MCCLUSKEY MONROE MARSH & SPYRATOS, LLC 3051 OAK GROVE ROAD SUITE 220 DOWNERS GROVE, IL 60515-1181 UNITED STATES					
<b>TITLE</b> Vehicle floor tray					
<b>FILING FEE RECEIVED</b> 1279	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		<input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees (Filing) <input type="checkbox"/> 1.17 Fees (Processing Ext. of time) <input type="checkbox"/> 1.18 Fees (Issue) <input type="checkbox"/> Other _____ <input type="checkbox"/> Credit		

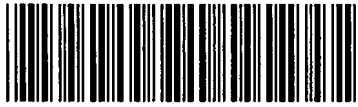
<b>Issue Classification</b> 	<b>Application/Control No.</b> 10/976,441	<b>Applicant(s)/Patent under Reexamination</b> MACNEIL, DAVID F.
	<b>Examiner</b> Elizabeth Robinson	<b>Art Unit</b> 1773

ISSUE CLASSIFICATION										
ORIGINAL					INTERNATIONAL CLASSIFICATION					
CLASS		SUBCLASS			CLAIMED			NON-CLAIMED		
428		515			B	32	B	27	/08	/
CROSS REFERENCES								/		/
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)							/		/
428	517							/		/
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<i>Elizabeth Robinson</i> Elizabeth Robinson (Assistant Examiner) (Date)	<i>Carol Chaney</i> Carol Chaney (Primary Examiner) (Date)	<b>Total Claims Allowed: 42</b>
<i>Legal Instruments Examiner</i> (Legal Instruments Examiner) (Date)		O.G. Print Claim(s) 1
		O.G. Print Fig. 1

<input type="checkbox"/> Claims renumbered in the same order as presented by applicant		<input type="checkbox"/> CPA		<input type="checkbox"/> T.D.		<input type="checkbox"/> R.1.47	
Final	Original	Final	Original	Final	Original	Final	Original
14	1	21	31	61	25	91	
	2		32	62	26	92	
	3		33	63	29	93	
	4		34	64	30	94	
	5	17	35	65	31	95	
	6	28	36	66	32	96	
	7	34	37	67	33	97	
	8	18	38	68	35	98	
	9		39	69	36	99	
	10	19	40	70	37	100	
	11	1	41	71	38	101	
	12	7	42	72	39	102	
	13		43	73	40	103	
	14	20	44	74	41	104	
	15	27	45	75	42	105	
	16		46	76	2	106	
	17		47	77	3	107	
	18		48	78	4	108	
	19		49	79	5	109	
	20		50	80	6	110	
	21		51	81	8	111	
	22		52	82	9	112	
	23		53	83	10	113	
	24		54	84	11	114	
	25		55	85	12	115	
	26		56	86		116	
15	27		57	13	87		
16	28		58	22	88		
	29		59	23	89		
	30		60	24	90		

**Search Notes**



Application/Control No.

10/976,441

Examiner

Elizabeth Robinson

Applicant(s)/Patent under Reexamination

MACNEIL, DAVID F.

Art Unit

1773

**SEARCHED**

Class	Subclass	Date	Examiner
428	515	9/27/2007	EAR
428	517	9/27/2007	EAR
428	522	9/27/2007	EAR

**SEARCH NOTES  
(INCLUDING SEARCH STRATEGY)**

	DATE	EXMR
Updated inventor name search	9/27/2007	EAR
Updated search	9/27/2007	EAR
Class 428/(515 and 517), thermoplastic vulcanizate	9/27/2007	EAR
Class 428/522, ABS, coextrude	9/27/2007	EAR
Discussed classification with Primary Examiner Kruer	9/27/2007	EAR

**INTERFERENCE SEARCHED**

Class	Subclass	Date	Examiner
428	515	9/27/2007	EAR
428	517	9/27/2007	EAR

## EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	5	("4591532" "6027782" "6155629" "6953545" "6953545" "D377780").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2006/10/12 08:20
S2	49	US-5891546-\$.DID. OR US-6027782-\$.DID. OR US-4828898-\$.DID. OR US-5449256-\$.DID. OR US-5236241-\$.DID. OR US-4863212-\$.DID. OR US-4265447-\$.DID. OR US-4919467-\$.DID. OR US-5246151-\$.DID. OR US-5269447-\$.DID. OR US-5360362-\$.DID. OR US-5746636-\$.DID. OR US-5842899-\$.DID. OR US-6899224-\$.DID. OR US-6921129-\$.DID. OR US-6301739-\$.DID. OR US-4988003-\$.DID. OR US-5716190-\$.DID. OR US-6200212-\$.DID. OR US-5998770-\$.DID. OR US-4894275-\$.DID. OR US-4991900-\$.DID. OR US-5886305-\$.DID. OR US-6956465-\$.DID. OR US-4540888-\$.DID. OR US-4613048-\$.DID. OR US-4915275-\$.DID. OR US-5390976-\$.DID. OR US-5664932-\$.DID. OR US-6116266-\$.DID. OR US-6216995-\$.DID. OR US-6216995-\$.DID. OR US-4377610-\$.DID. OR US-4415618-\$.DID. OR US-4878264-\$.DID. OR US-4878878-\$.DID. OR US-4915376-\$.DID. OR US-4917932-\$.DID. OR US-5964639-\$.DID. OR US-6095058-\$.DID. OR US-4084655-\$.DID. OR US-4813751-\$.DID. OR US-4826030-\$.DID. OR US-4989846-\$.DID. OR US-5020638-\$.DID. OR US-5526900-\$.DID. OR US-5830560-\$.DID. OR US-5927785-\$.DID. OR US-6027781-\$.DID. OR US-6155629-\$.DID.	US-PGPUB; USPAT; USOCR	OR	OFF	2006/10/05 10:06
S3	5	"2004050360"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/05 11:46
S4	2506	SANTOPRENE, GEOLAST and VYRAM	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/10 12:07
S5	4349	428/500.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/09/27 11:21
S6	3	S4 and S5	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/05 12:50
S7	11022	floor near (mat or cover)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 11:51
S8	10	S4 and S7	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/05 13:20
S9	52228	carpet	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/05 13:21

## EAST Search History

S10	44	S9 and S4	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/05 13:21
S11	84378	ABS.u/c.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/11 13:45
S12	11022	floor near (mat or cover)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/18 08:13
S13	94	S11 and S12	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 14:46
S14	16956	(high near molecular near weight near polyethylene)or hmpe	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 08:36
S15	11022	floor near (mat or cover)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 08:36
S16	16	S14 and S15	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 08:42
S17	4651656	multi-layer or multilayer or multi layer	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/09/27 10:35
S18	2506	SANTOPRENE, GEOLAST and VYRAM	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 11:50
S19	2510	lband S18	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 08:44
S20	63	S19 and S14	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 10:52
S21	26	("3578375"   "4083595"   "4101704"   "4188058"   "4245863"   "4396219"   "4693507"   "4765671"   "4779390"   "4801169"   "5094318"   "5165747"   "5185980"   "5360250"   "5370436"   "5372396"   "5470642"   "5472760"   "5505512"   "5540473"   "5551742"   "5597194"   "5636883"   "5648031"   "5688467"   "6237980").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2006/10/06 10:49

## EAST Search History

S22	3366	S15 and S17	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 10:53
S23	1394596	automobile or auto or car	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 10:53
S24	596	S22 and S23	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 10:58
S25	271514	"428"/\$.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 11:00
S26	157	S25 and S24	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 11:25
S27	1993839	polymer	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 11:25
S28	53	S26 and S27	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 11:28
S29	507793	thermoplastic	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 13:21
S30	226829	S29 and S27	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 13:22
S31	269	S30 and S22	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 13:24
S32	230	S31 not S28	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 13:25
S33	1	"4016318".PN.	USPAT; USOCR	OR	OFF	2006/10/06 13:44
S34	30	("4016318").URPN.	USPAT	OR	OFF	2006/10/06 13:45
S35	1	"4174991".PN.	USPAT; USOCR	OR	OFF	2006/10/06 13:48

## EAST Search History

S36	1	"4332767".PN.	USPAT; USOCR	OR	OFF	2006/10/06 13:49
S37	1	"5154961".PN.	USPAT; USOCR	OR	OFF	2006/10/06 13:49
S38	1	"5154961".PN.	USPAT; USOCR	OR	OFF	2006/10/06 13:56
S39	1	"5207963".PN.	USPAT; USOCR	OR	OFF	2006/10/06 13:56
S40	832717	floor	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 14:46
S41	84378	ABS.u/c.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 14:46
S42	7121	S40 and S41	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 14:46
S43	271514	"428"/\$.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 14:46
S44	568	S42 and S43	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 14:50
S45	90	vyram	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 14:50
S46	2	"2623242".PN.	USPAT; USOCR	OR	OFF	2006/10/06 14:57
S47	2	"2915427".PN.	USPAT; USOCR	OR	OFF	2006/10/06 14:57
S48	2	"3555601".PN.	USPAT; USOCR	OR	OFF	2006/10/06 14:58
S49	1	"4828898".PN.	USPAT; USOCR	OR	OFF	2006/10/06 14:58
S50	1	"5554333".PN.	USPAT; USOCR	OR	OFF	2006/10/06 15:01
S51	1	"6020044".PN.	USPAT; USOCR	OR	OFF	2006/10/06 15:01
S52	1	"6020044".PN.	USPAT; USOCR	OR	OFF	2006/10/06 15:34
S53	195521	truck	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/06 15:37
S54	388445	mat or tray	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/06 15:38

## EAST Search History

S55	10819	S53 and S54	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/06 15:38
S56	0	("6977113").URPN.	USPAT	OR	ON	2006/10/06 15:48
S57	13	("5439725").URPN.	USPAT	OR	ON	2006/10/06 16:16
S58	832	floor near tray	USPAT	OR	ON	2006/10/06 16:20
S59	60	S53 and S58	USPAT	OR	ON	2006/10/06 16:17
S60	271514	"428"/\$.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 16:20
S61	12	S60 and S58	USPAT	OR	ON	2006/10/06 16:20
S62	907	door near mat	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/10 08:14
S63	271570	"428"/\$.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/10 08:15
S64	99	S62 and S63	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/10 08:15
S65	21	("3651183"   "3954537"   "4020207"   "4053341"   "4147828"   "4259408").PN. OR ("4377614").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/10 11:43
S66	3509	shore near durometer	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/10 11:43
S67	306	S66 and S63	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/10 11:43
S68	2510	SANTOPRENE, GEOLAST and VYRAM	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/10 12:07
S69	155	S68 and S63	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/10 12:56
S70	501	kinetic adj coefficient adj friction	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/10 15:58
S71	151	S70 and S63	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/10 13:08



## EAST Search History

S72	2	("4693507").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/10 13:08
S73	2	("4693507").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/10 13:31
S74	48	("3652123"   "3814473"   "3881768"   "4047749"   "4161335"   "4162098"   "4181349"   "4245863"   "4279439"   "4333678"   "4336963"   "4341412"   "4428306"   "4505508"   "4575146"   "D259928").PN. OR ("4693507").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/10 15:51
S75	1	"6431629".pn.	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/10 15:52
S76	508338	thermoplastic	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/10 15:58
S77	191	S76 and S70	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/10 16:18
S78	2	"5648031".pn.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/10 16:20
S79	0	S78 and S70	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/10 16:21
S80	2	S78 and friction	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/10 16:40
S81	2514	santoprene	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/10 16:40
S82	7	S81 and S70	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/10 16:40
S83	84477	ABS.u/c.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/11 13:45
S84	11038	floor near (mat or cover)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/11 13:45

## EAST Search History

S85	94	S83 and S84	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/11 13:47
S86	271570	"428"/\$.ccis.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/11 13:48
S87	13	S85 and S86	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/11 13:57
S88	388604	mat or tray	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/11 13:57
S89	5772	S88 and S83	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/11 13:57
S90	4659755	multi-layer or multilayer or multi layer	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/11 13:58
S91	3809	S90 and S89	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/11 13:59
S92	1395892	automobile or auto or car	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/11 13:59
S93	836	S91 and S92	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/11 14:01
S94	203	S86 and S93	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/11 15:23
S95	1	"10535088"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/11 15:23
S96	443339	(styrene adj acrylonitrile adj copolymer) or san	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/15 15:50
S97	388850	mat or tray	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/12 08:25

## EAST Search History

S98	27294	S97 and S96	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 08:25
S99	11040	floor near (mat or cover)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/12 08:25
S10 0	152	S96 and S99	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 08:30
S10 1	271682	"428"/\$.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/12 08:30
S10 2	16	S101 and S100	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 08:36
S10 3	27819	Acrylonitrile adj butadiene adj styrene	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/15 16:09
S10 4	3424	S101 and S103	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 08:37
S10 5	11	S99 and S104	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 09:17
S10 6	1	S103 and "20040048036"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 09:17
S10 7	2385	(428/517,521).ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 12:28
S10 8	62540	shower	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 12:29
S10 9	29	S107 and S108	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 16:08

## EAST Search History

S11 0	17478	coextrude or coextrusion or coextruding	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 15:31
S11 1	3287	(coextrude or coextrusion or coextruding)same (composition or adjustment)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:39
S11 2	2863	S111 and polymer	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 15:35
S11 3	1332	S112 and S101	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 09:22
S11 4	1259	S113 and method	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 16:00
S11 5	318	S114 and compatibility	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 16:00
S11 6	17	S109 and (S103 or ABS.u/c.)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 12:52
S11 7	30578	styrene adj acrylonitrile	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 12:54
S11 8	4662228	multi-layer or multilayer or multi layer	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/13 12:54
S11 9	14276	S118 and S117	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 12:54
S12 0	27819	Acrylonitrile adj butadiene adj styrene	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 12:55
S12 1	3329	S120 and S119	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 12:56

## EAST Search History

S12 2	17478	coextrude or coextrusion or coextruding	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 12:56
S12 3	391	S122 and S121	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 12:57
S12 4	271682	"428"/\$.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/13 12:57
S12 5	204	S124 and S123	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 12:57
S12 6	42	("3041719"   "3489392"   "3554494"   "3944631"   "4151226"   "4181764"   "4208175"   "4249875"   "4453357"   "4514449"   "4517339"   "4610902"   "4731414"   "4746688"   "4831079"   "4860996"   "4964618"   "5077948"   "5100109"   "5329741"   "5404685"   "5416139"   "5418028"   "5486553"   "5706620"   "5743986"   "5847016"   "5858493"   "5883191"   "5899442"   "5953878"   "6039307"   "6054207"   "6133349"   "6265037"   "6295782"   "6344268"   "6434906"   "D409869"   "D462458").PN. OR ("6827995").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/13 14:31
S12 7	286143	gradient	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/13 14:32
S12 8	1216	S122 and S127	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/13 14:36
S12 9	387	S128 and S124	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/13 14:39
S13 0	204	S129 and (compatible or compatibility)	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/13 16:05
S13 1	7331	(264/16\$,17\$).ccls.	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/13 16:06
S13 2	6	S128 and S131	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/16 09:18
S13 3	101	S122 and S131	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/13 16:17
S13 4	80715	(styrene adj acrylonitrile ) or san.u/c.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 10:38
S13 5	84545	ABS.u/c.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/16 10:39

## EAST Search History

S13 6	27819	Acrylonitrile adj butadiene adj styrene	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 10:39
S13 7	62551	shower	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 10:39
S13 8	1261	S137 and (S136 or S135 or S134)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 10:39
S13 9	4663093	multi-layer or multilayer or multi layer	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/16 10:40
S14 0	749	S139 AND S138	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 10:43
S14 1	271682	"428"/\$.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/16 10:43
S14 2	171	S141 AND S140	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 10:52
S14 3	148	S137 AND ((S135 or S136)and S134)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 10:54
S14 4	44	S143 and S141	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 12:05
S14 5	104	S143 not S144	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 13:05
S14 6	2	("20040048036").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/16 13:06
S14 7	1	S146 and (S134 or S135 or S136)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 13:17

## EAST Search History

S14 8	4546	acrylonitrile-styrene	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 13:20
S14 9	2627	S139 and S148	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 13:21
S15 0	648	S149 and S141	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 13:22
S15 1	1507	S149 and (S135 or S136)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 13:23
S15 2	15	S151 and S137	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 13:23
S15 3	792539	polyethylene	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:39
S15 4	17479	coextrude or coextrusion or coextruding	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:40
S15 5	11533	S154 and S153	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:40
S15 6	3198	S153 same S154	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:44
S15 7	389905	(layer or layering) same composition	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:44
S15 8	1285	S156 and S157	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:45
S15 9	75763	(mixture or mix) same S157	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:47

## EAST Search History

S16 0	282	S159 and S156	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:47
S16 1	65	(coextrusion or coextruding or coextrude or co adj extrusion or co adj extrude) same (compatible or similar) same material same (layers or layer or layered) near15 adjacent	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/17 08:06
S16 2	2772	SANTOPRENE or GEOLAST or VYRAM	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/18 08:18
S16 3	838	thermoplastic near3 vulcanizate	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 15:11
S16 4	751	S163 not S162	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 11:51
S16 5	57465	(floor near3 (mat or cover)) or flooring	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 15:51
S16 6	60	(S162 or S163)and S165	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 11:52
S16 7	16	uniprene	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 13:29
S16 8	209	Versaflex or Versalloy	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 13:29
S16 9	24	S165 and S168	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 13:33
S17 0	9	FORPRENE	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 13:33
S17 1	52	thermoplastic near3 vulcanisate	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 15:11



## EAST Search History

S17 2	543554	(styrene near3 acrylonitrile) or san	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/15 15:51
S17 3	2061	S172 and S165	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/15 15:51
S17 4	990	S173 and (layers or layer or multi-layer or multilayer)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/15 16:11
S17 5	208	(floor near3 (mat or cover))and S174	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 16:11
S17 6	337581	(Acrylonitrile near3 butadiene near3 styrene)or ABS.u/c.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 09:06
S17 7	67327	S172 and S176	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/15 16:11
S17 8	773	S177 and S165	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/15 16:11
S17 9	509	S178 and (layers or layer or multi-layer or multilayer)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/15 16:11
S18 0	75	(floor near3 (mat or cover))and S179	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 16:11
S18 1	241911	mat	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/18 08:46
S18 2	4061540	multi-layer or multilayer or (multi near3 layer) or layer or layered	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/18 08:46
S18 3	76085	S181 and S182	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/18 08:48

## EAST Search History

S18 4	2772	SANTOPRENE or GEOLAST or VYRAM	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/18 08:45
S18 5	38	S184 and S183	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/18 08:18
S18 6	2	"US 20040000746"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2007/06/18 08:44
S18 7	1535	bed near3 liner	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2007/06/18 09:00
S18 8	4	S187 and S184	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2007/06/18 08:44
S18 9	2795	SANTOPRENE\$2 or GEOLAST\$2 or VYRAM\$2	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/18 13:02
S19 0	23	S189 not S184	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/18 08:45
S19 1	264447	mat	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 09:04
S19 2	4338235	multi-layer or multilayer or (multi near3 layer) or layer or layered	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 09:05
S19 3	91869	S191 and S192	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 08:50
S19 4	48	S189 and S193	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 08:50
S19 5	10	S194 not S185	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 08:50
S19 6	1564	bed near3 liner	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 09:01

## EAST Search History

S19 7	4	S196 and S189	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 09:01
S19 8	62896	san.u/c.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 09:04
S19 9	999	S191 and S198	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 09:05
S20 0	670	S192 and S199	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 09:05
S20 1	670	s176and S200	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 09:08
S20 3	337625	(Acrylonitrile near3 butadiene near3 styrene)or ABS.u/c.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/09/27 09:57
S20 4	282	S203 and S200	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 09:09
S20 5	74	S204 and floor	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 09:09
S20 6	7	S196 and S203 and S198	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 11:52
S20 7	17	("4230761"   "4234653"   "4243725"   "4339502"   "4359506"   "4447488"   "4451512"   "4600648"   "4647509"   "4654255"   "4656094"   "4659785"   "4719153"   "4792477").PN. OR ("5082742").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2007/06/18 10:31
S20 8	359322	extrude or extrusion or coextrude or extruded or coextruded	US-PGPUB; USPAT; USOCR	OR	ON	2007/06/18 12:10
S20 9	2469	S208 and S203 and S198	US-PGPUB; USPAT; USOCR	OR	ON	2007/06/18 11:07
S21 0	969	S209 and (mat or liner or cover)	US-PGPUB; USPAT; USOCR	OR	ON	2007/06/18 10:34
S21 1	377	S209 and (mat or liner)	US-PGPUB; USPAT; USOCR	OR	ON	2007/06/18 10:35

## EAST Search History

S21 2	304	S211 and S192	US-PGPUB; USPAT; USOCR	OR	ON	2007/06/18 10:38
S21 3	30	(floor near3 (mat or cover or tray)) and S203 and S198	US-PGPUB; USPAT; USOCR	OR	ON	2007/06/18 12:02
S21 4	25	S208 and S213	US-PGPUB; USPAT; USOCR	OR	ON	2007/06/18 11:08
S21 5	38	("3509963"   "4235398"   "4535017"   "4539256"   "4726987"   "4726989"   "4767656"   "4837067"   "4849276"   "4880680"   "4926963"   "5030518"   "5051144"   "5108821"   "5169700"   "5240527"   "5251917"   "5277955"   "5298694"   "5325892"   "5362539"   "5431990"   "5472760"   "H000957").PN. OR ("5624726").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2007/06/18 11:19
S21 6	606	rubber near3 toughened	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 11:23
S21 7	22	S216 and S189	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 11:50
S21 8	9905	(skid or antiskid or antiskid or slip or antislip or anti-slip or anti-skid) near3 (mat or base or tray)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 11:52
S21 9	6	S218 and S203 and S198	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 11:52
S22 0	15242	(floor near3 (mat or cover or tray))	US-PGPUB; USPAT; USOCR	OR	ON	2007/06/18 12:01
S22 1	28282	(floor near3 (mat or cover or tray))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 12:58
S22 2	778	S221 and S203	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 12:09
S22 3	565375	extrude or extrusion or coextrude or extruded or coextruded	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 12:10
S22 4	239	S222 and S223	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 12:11
S22 5	10	("2623242"   "2915427"   "3555601"   "4828898"   "5171619"   "5554333"   "6020044").PN. OR ("6953545").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2007/06/18 12:43

## EAST Search History

S22 6	29261	(floor near3 (mat or liner or cover or tray))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 12:59
S22 7	1116	S226 and S223 and S192	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 13:34
S22 8	9774	(SANTOPRENE\$2 or GEOLAST\$2 or VYRAM\$2) or (vulcanizate or vulcanisate)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/09/27 09:55
S22 9	29	S227 and S228	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/18 13:03
S23 0	7974	S226 and S192	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 13:13
S23 1	51	S228 and S230	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 13:13
S23 2	22	S231 not S229	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 13:34
S23 3	2036	S226 and S223	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 13:34
S23 4	50	S228 and S233	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 13:34
S23 5	21	S234 not S229	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 14:31
S23 6	126	S226 and S228	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 14:31
S23 7	38	((DAVID) near2 (MACNEIL)).INV.	US-PGPUB; USPAT	OR	ON	2007/09/27 09:57
S23 8	13183	(SANTOPRENE\$2 or GEOLAST\$2 or VYRAM\$2) or (vulcanizate or vulcanisate)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/09/27 10:39

## EAST Search History

S23 9	346693	(Acrylonitrile near3 butadiene near3 styrene)or ABS.u/c.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/09/27 11:19
S24 0	38	((DAVID) near2 (MACNEIL)).INV.	US-PGPUB; USPAT	OR	ON	2007/09/27 09:57
S24 1	3527	S238 and (layer or multilayer)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/09/27 10:34
S24 2	344878	multi-layer or multilayer or (multi near3 layer)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/09/27 10:35
S24 3	2094	S238 and S239	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/09/27 10:36
S24 4	589	S238 and S242	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/09/27 10:39
S24 5	4138	(SANTOPRENE\$2 or GEOLAST\$2 or VYRAM\$2) or (thermoplastic near3 (vulcanizate or vulcanisate))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/09/27 11:49
S24 6	480	S245 and S242	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/09/27 10:40
S24 7	446	S246 and (polyolefin or polypropylene or polyethylene)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/09/27 10:41
S24 8	13779	S239 and S242	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/09/27 11:19
S24 9	2944	428/515.ccls. or 428/517.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/09/27 11:21
S25 0	25	S249 and S245	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/09/27 11:22
S25 1	8085	((SANTOPRENE\$2 or GEOLAST\$2 or VYRAM\$2) or (thermoplastic near3 (vulcanizate or vulcanisate or elastomer))).cm.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/09/27 12:16

## EAST Search History

S25 2	107	S249 and S251	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/09/27 11:50
S25 3	512	((SANTOPRENE\$2 or GEOLAST\$2 or VYRAM\$2) or (thermoplastic near3 (vulcanizate or vulcanisate))).clm.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/09/27 12:16
S25 4	5	S249 and S253	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/09/27 12:20
S25 5	13779	S239 and S242	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/09/27 12:20
S25 6	1920	S255 and (mat or tray)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/09/27 12:21
S25 7	1874	S255 and (coextrude or coextrusion or coextruded or coextruding)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/09/27 12:22
S25 8	1920	S256 and (mat or tray)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/09/27 12:22
S25 9	334	S257 and (mat or tray)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/09/27 12:23
S26 0	523	S239 same (coextrude or coextrusion or coextruded or coextruding)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/09/27 12:37
S26 1	242	S242 and S260	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/09/27 12:23
S26 2	36	S261 and (mat or tray)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/09/27 12:36
S26 3	4239	428/522.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/09/27 12:36

## EAST Search History

S26 4	475	S239 and S263	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/09/27 12:36
S26 5	97	S264 and(coextrude or coextrusion or coextruded or coextruding)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/09/27 12:37
S26 6	2	"US 20060091694"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2007/09/27 13:15



IN THE UNITED STATES PATENT & TRADEMARK OFFICE

In re the application of: David F. MACNEIL  
 Application Number: 10/976,441  
 Filed: 29 October 2004  
 Art Unit: 3612  
 Examiner: Elizabeth Robinson  
 Confirmation Number: 2133  
 For: VEHICLE FLOOR TRAY

CERTIFICATE OF TRANSMISSION BY  
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I hereby certify that this correspondence is being transmitted via the USPTO electronic filing system in accordance with 37 CFR §1.6(a)(4) on the date below:

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26 September 2007  
Date

/Patty Romanelli/  
Patty Romanelli

Commissioner for Patents  
 P.O. Box 1450  
 Alexandria, VA 22313-1450

**AMENDMENT AFTER FINAL REJECTION**

Dear Madam:

This communication is responsive to the Examiner's Action mailed 27 June 2007.

IN THE CLAIMS

Please amend the claims as shown in the following Claim Listing. In particular, Applicant cancels Claims 25, 30, 33, 46 and 85, amends Claims 1, 27, 31, 35 – 38, 41, 42, 44, 45, 86 and 87, and adds Claims 88 -- 116.

**CLAIM LISTING**

1. (Currently amended) The vehicle floor cover of Claim ~~2587~~, wherein a top surface of the top layer exhibits a kinetic coefficient of friction of at least about 0.82 with respect to neoprene rubber that has a Shore A durometer reading of 60.

2. (Canceled)

3. (Canceled)

4. (Canceled)

5. (Canceled)

6. (Canceled)

7. (Canceled)

8. (Canceled)

9. (Canceled)

10. (Canceled)

- 11. (Canceled)
- 12. (Canceled)
- 13. (Canceled)
- 14. (Canceled)
- 15. (Canceled)
- 16. (Canceled)
- 17. (Canceled)
- 18. (Canceled)
- 19. (Canceled)
- 20. (Canceled)
- 21. (Canceled)
- 22. (Canceled)

23. (Canceled)

24. (Canceled)

25. (Canceled)

26. (Canceled)

27. (Currently amended) The floor cover of Claim ~~25~~27, wherein the polyolefin of the core layer is selected from the group consisting of polyethylene and polypropylene.

28. (Previously presented) The floor cover of Claim 27, wherein a major portion of the core layer consists of high molecular weight polyethylene (HMPE).

29. (Canceled)

30. (Canceled)

31. (Currently amended) A vehicle floor cover, comprising:  
a predominately polyolefin thermoplastic polymer core layer further including a portion of thermoplastic vulcanizate (TPV), a ~~The floor cover of Claim 25, wherein in the core layer, the~~ weight ratio of polyolefin to thermoplastic vulcanizate in the core layer being is about 3:1; and  
a thermoplastic polymer top layer coextruded with the core layer and having as a major portion thereof a TPV and having as a minor portion thereof a polyolefin.

32. (Canceled)

33. (Canceled)

34. (Canceled)

35. (Currently amended) The floor cover of Claim ~~25~~87, wherein the top layer is selected from the group consisting of polypropylene and polyethylene.

36. (Currently amended) A vehicle floor cover, comprising:  
a predominately polyolefin thermoplastic polymer core layer, a minor portion of  
the core layer being a thermoplastic vulcanizate (TPV); and  
a thermoplastic polymer top layer coextruded with the core layer and having as a  
major portion thereof a TPV and having as a minor portion thereof a ~~The floor cover of Claim~~  
~~35, wherein the polyolefin of the top layer is high molecular weight polyethylene (HMPE).~~

37. (Currently amended) A vehicle floor cover, comprising:  
a predominately polyolefin thermoplastic polymer core layer, a minor portion of  
the core layer being a thermoplastic vulcanizate (TPV); and  
a thermoplastic polymer top layer coextruded with the core layer and having as a  
major portion thereof a TPV and having as a further portion thereof a polyolefin, a ~~The floor~~  
~~cover of Claim 25, wherein in the top layer, the ratio by weight of the thermoplastic vulcanizate~~  
~~to the polyolefin is~~ in the top layer being about 3:1.

38. (Currently amended) The floor cover of Claim ~~2587~~, and further comprising a thermoplastic polymer bottom layer coextruded with the core layer and the top layer, a minor portion of the bottom layer composed of a polyolefin, a major portion of the bottom layer being composed of is a thermoplastic vulcanizate.

39. (Canceled)

40. (Previously presented) The floor cover of Claim 38, wherein the polyolefin of the bottom layer is selected from the group consisting of polypropylene and polyethylene.

41. (Currently amended) A vehicle floor cover, comprising:  
a predominately polyolefin thermoplastic polymer core layer, a minor portion of  
the core layer being a thermoplastic vulcanizate (TPV);  
a thermoplastic polymer top layer coextruded with the core layer and having as a  
major portion thereof a TPV and having as a minor portion thereof a polyolefin; and  
a thermoplastic polymer bottom layer coextruded with the core layer and the top  
layer, a minor portion of the bottom layer composed of a ~~The floor cover of Claim 40, wherein~~  
~~the polyolefin of the bottom layer is high molecular weight polyethylene (HMPE), a major~~  
portion of the bottom layer being composed of a TPV.

42. (Currently amended) A vehicle floor cover, comprising:  
a predominately polyolefin thermoplastic elastomer core layer, a minor portion of  
the core layer being a thermoplastic vulcanizate (TPV);

a thermoplastic polymer top layer coextruded with the core layer and having as a major portion thereof a TPV and having as a minor portion thereof a polyolefin; and

a thermoplastic polymer bottom layer coextruded with the core layer and the top layer, a major portion of the bottom layer being composed of a polyolefin, a further portion of the bottom layer being composed of a TPV, a ~~The floor cover of Claim 38, wherein in the bottom layer, the weight ratio of the thermoplastic vulcanizate to the polyolefin is in the bottom layer~~ being about 3:1.

43. (Canceled)

44. (Currently amended) The floor cover of Claim ~~25~~87, wherein the floor cover is a vehicle floor mat or a vehicle floor tray.

45. (Currently amended) The floor cover of Claim ~~25~~, wherein one or more of the shear strength per cross-sectional area, tensile strength per cross-sectional area and stiffness per cross-sectional area of the floor cover is greater than that of the layers from which the floor cover is composed.

46. – 85. (Canceled)

86. (Currently amended) A vehicle floor cover, comprising:  
coextruded thermoplastic top, core and bottom layers, wherein the core layer is  
comprised of a material selected from the group consisting of acrylonitrile butadiene styrene

copolymer (ABS) and styrene acrylonitrile copolymer (SAN), the top layer being comprised of a grade of ABS where the percentage by weight of polybutadiene is greater than the percentage by weight of the polybutadiene in the core layer. ~~The vehicle floor cover of Claim 46, and further comprising a bottom layer coextruded with the top and core layers, the bottom layer comprised of a grade of ABS in which the percentage by weight of polybutadiene is greater than the percentage by weight of the polybutadiene in the core layer.~~

87. (Currently amended) A vehicle floor cover, comprising:  
a predominately polyolefin thermoplastic polymer core layer, a minor portion of the core layer being a thermoplastic vulcanizate (TPV); and  
a thermoplastic polymer top layer coextruded with the core layer and having as a major portion thereof a TPV and having as a minor portion thereof a polyolefin. ~~The vehicle floor cover of Claim 25, wherein the vehicle floor cover has having a flexural modulus which is less than or equal to about 36,000 psi.~~

88. (New) The vehicle floor cover of Claim 31, wherein a top surface of the top layer exhibits a coefficient of friction of at least about 0.82 with respect to neoprene rubber that has a Shore A durometer reading of 60.

89. (New) The vehicle floor cover of Claim 31, wherein the polyolefin of the top layer is selected from the group consisting of polypropylene and polyethylene.



90. (New) The vehicle floor cover of Claim 31, and further comprising a thermoplastic polymer bottom layer coextruded with the core layer and the top layer, a minor portion of the bottom layer composed of a polyolefin, a major portion of the bottom layer being composed of a thermoplastic vulcanizate.

91. (New) The vehicle floor cover of Claim 90, wherein the polyolefin of the bottom layer is selected from the group consisting of polypropylene and polyethylene.

92. (New) The vehicle floor cover of Claim 31, wherein the floor cover is a vehicle floor mat or vehicle floor tray.

93. (New) The vehicle floor cover of Claim 36, wherein a top surface of the top layer exhibits a kinetic coefficient of friction of at least about 0.82 with respect to neoprene rubber that has a Shore A durometer reading of 60.

94. (New) The vehicle floor cover of Claim 36, wherein the polyolefin of the core layer is selected from the group consisting of polyethylene and polypropylene.

95. (New) The vehicle floor cover of Claim 94, wherein the polyolefin of the core layer consists of high molecular weight polyethylene (HMPE).

96. (New) The vehicle floor cover of Claim 36, wherein the floor cover is a vehicle floor

mat or a vehicle floor tray.

97. (New) The vehicle floor cover of Claim 36, wherein one or more of the shear strength per cross-sectional area, tensile strength per cross-sectional area and stiffness per cross-sectional area of the floor cover is greater than that of the layers from which the floor cover is composed.

98. (New) The vehicle floor cover of Claim 37, wherein a top surface of the top layer exhibits a kinetic coefficient of friction of at least about 0.82 with respect to neoprene rubber that has a Shore A durometer reading of 60.

99. (New) The vehicle floor cover of Claim 37, wherein the polyolefin of the core layer is selected from the group consisting of polyethylene and polypropylene.

100. (New) The vehicle floor cover of Claim 99, wherein the major portion of the core layer consists of high molecular weight polyethylene (HMPE).

101. (New) The vehicle floor cover of Claim 37, wherein the polyolefin of the top layer is selected from the group consisting of polypropylene and polyethylene.

102. (New) The vehicle floor cover of Claim 37, and further comprising a thermoplastic polymer bottom layer coextruded with the core layer and the top layer, a minor portion of the

bottom layer composed of a polyolefin, a major portion of the bottom layer being composed of a thermoplastic vulcanizate.

103. (New) The vehicle floor cover of Claim 102, wherein the polyolefin of the bottom layer is selected from the group consisting of polypropylene and polyethylene.

104. (New) The vehicle floor cover of Claim 37, wherein the floor cover is a vehicle floor mat or vehicle floor tray.

105. (New) The vehicle floor cover of Claim 37, wherein one or more of the shear strength per cross-sectional area, tensile strength per cross-sectional area and stiffness per cross-sectional area of the floor cover is greater than that of the layers from which the floor cover is composed.

106. (New) The vehicle floor cover of Claim 41, wherein a top surface of the top layer exhibits a kinetic coefficient of friction of at least about 0.82 with respect to neoprene rubber that has a Shore A durometer reading of 60.

107. (New) The vehicle floor cover of Claim 41, wherein the polyolefin of the core layer is selected from the group consisting of polyethylene and polypropylene.

108. (New) The vehicle floor cover of Claim 107, wherein a major portion of the core

layer consists of high molecular weight polyethylene (HMPE).

109. (New) The vehicle floor cover of Claim 41, wherein the floor cover is a vehicle floor mat or a vehicle floor tray.

110. (New) The vehicle floor cover of Claim 41, wherein one or more of the shear strength per cross-sectional area, tensile strength per cross-sectional area and stiffness per cross-sectional area of the floor cover is greater than that of the layers from which the floor cover is composed.

111. (New) The vehicle floor cover of Claim 42, wherein a top surface of the top layer exhibits a kinetic coefficient of friction of at least about 0.82 with respect to neoprene rubber that has a Shore A durometer reading of 60.

112. (New) The vehicle floor cover of Claim 42, wherein the polyolefin of the core layer is selected from the group consisting of polyethylene and polypropylene.

113. (New) The vehicle floor cover of Claim 112, wherein a major portion of the core layer consists of high molecular weight polyethylene (HMPE).

114. (New) The vehicle floor cover of Claim 42, wherein the floor cover is a vehicle floor mat or a vehicle floor tray.

115. (New) The vehicle floor cover of Claim 42, wherein one or more of the shear strength per cross-sectional area, tensile strength per cross-sectional area and stiffness per cross-sectional area of the floor cover is greater than that of the layers from which the floor cover is composed.

116. (New) The vehicle floor cover of Claim 86, wherein the floor cover is a vehicle floor mat or a vehicle floor tray.

**REMARKS**

In her final office action, the Examiner rejected Claims 1, 25, 27, 28, 30, 33, 35, 38, 40, 44 – 46 and 85, but indicated that Claims 31, 36, 37, 41, 42, 86 and 87 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Accordingly, each of Claims 31, 36, 41, 42, 86 and 87 has been amended to independent form. Claims 31, 36, 37, 41, 42 and 87 have been amended to substantially include the limitations of Claim 25 as last presented; Applicant has not, however, repeated Claim 25's recitation of a "top surface" and a "bottom surface" of the core layer, as this reference structure is not used elsewhere in these claims. Claim 86 has been amended to include the limitations of Claim 46.

Independent Claims 25 and 46 have now been canceled. In response to the Examiner's continuing objection to the appearance of the trademarks SANTOPRENE, GEOLAST and VYRAM in the claims, Applicant also has now canceled dependent claims 30, 33 and 85.

This leaves dependent Claims 1, 27, 28, 35, 38, 40, 44 and 45. As last presented, these claims had been directly or indirectly dependent on Claim 25, now canceled. Applicant has changed the dependency of these claims so that, with the exception of Claim 45, they depend directly or indirectly, on now-independent Claim 87. Claim 45 has been amended to depend from now-independent Claim 31.

Applicant also presents herewith new Claims 88 – 116, which however are no more than replications of Claims 1, 27, 28, 35, 38, 40, 44 or 45 and each of which now depend on one of newly-independent Claims 31, 36, 37, 41, 42 and 86. These new dependent claims are now presented, and could not have been presented before (37 CFR § 1.116(b)(3)), because rejected

independent Claims 25 and 46 have now been canceled, and independent claims 31, 36, 37, 41, 42, 86 and 87 have only now been substituted in their place at the Examiner's suggestion.

Each one of the new dependent claims contains limitations similar to one of the previously presented dependent claims, but are dependent on a different independent claim. Specifically, new dependent Claims 88, 93, 98, 106 and 111 are patterned after Claim 1 (reciting a coefficient of friction with respect to neoprene rubber); Claims 94, 99, 107 and 112 are patterned after Claim 27; Claims 95, 100, 108 and 113 are patterned after Claim 28; Claims 89 and 101 are patterned after Claim 35; Claims 90 and 102 are patterned after Claim 38 (adding a bottom layer); Claims 91 and 103 are patterned after Claim 40; Claims 92, 96, 104, 109, 114 and 116 are patterned after Claim 44 (specifying that the floor cover is a mat or tray); and Claims 97, 105, 110 and 115 are patterned after Claim 45.

Of the above, new Claims 88 – 92 indirectly or directly depend on now-independent Claim 31. Claims 93 – 97 directly or indirectly depend on now-independent Claim 36. Claims 98 – 105 directly or indirectly depend from now-independent Claim 37. Claims 106 – 110 directly or indirectly depend from now-independent Claim 41. Claims 111 – 115 directly or indirectly depend from now-independent Claim 42. Lastly, Claim 116 depends from now-independent Claim 86.

These claims are all allowable at least for their dependence on an allowable base claim. As the Examiner has considered the limitations of each of these dependent claims before, she should not have to do any further search, address any new issues or perform much other work in considering them now. Applicant therefore respectfully requests that these dependent claims be considered and allowed in the Examiner's next action.

This Amendment is intended to put the claims in compliance with each of the Examiner's

rejections and objections under 37 CFR § 1.113(c), and to otherwise place this Application in full condition for allowance. If any issues remain, Applicant invites the Examiner to telephone the undersigned.

This Amendment After Final Rejection is being submitted within the initial three-month shortened statutory period for response, and Applicant's amendments do not necessitate the payment of additional claim fees (there are now seven independent and 44 total claims in the case, respectively fewer than the nine independent and 84 total claims for which Applicant initially paid). Therefore no fee is thought to be due in conjunction with this submission. Nonetheless, the Commissioner is hereby authorized to charge Deposit Account No. 503982 of Momkus McCluskey Monroe Marsh & Spyratos, LLC to cover any fee deficiency.

Respectfully submitted,

/Jefferson Perkins/  
Jefferson Perkins  
Registration No. 31,407

**CUSTOMER NO. 64770**

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## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	2241765
<b>Application Number:</b>	10976441
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	2133
<b>Title of Invention:</b>	Vehicle floor tray
<b>First Named Inventor/Applicant Name:</b>	David F. MacNeil
<b>Customer Number:</b>	64770
<b>Filer:</b>	Jefferson Perkins/Patricia Romanelli
<b>Filer Authorized By:</b>	Jefferson Perkins
<b>Attorney Docket Number:</b>	31700.000069
<b>Receipt Date:</b>	26-SEP-2007
<b>Filing Date:</b>	29-OCT-2004
<b>Time Stamp:</b>	10:27:14
<b>Application Type:</b>	Utility under 35 USC 111(a)

### Payment information:

Submitted with Payment	no
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### File Listing:

Document Number	Document Description	File Name	File Size(Bytes) /Message Digest	Multi Part /.zip	Pages (if appl.)
1	Amendment After Final	AmdtFinalRejection.pdf	160298 <small>9c77538f48944a17a933476f62aae0e2ae1c58f</small>	no	16

**Warnings:**

MacNeil Exhibit 2002

Yita v. MacNeil IP, IPR2020-01138

<b>Information:</b>	
<b>Total Files Size (in bytes):</b>	160298
<p><b>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b>  <b>If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</b></p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b>  <b>If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</b></p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b>  <b>If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</b></p>	

**PATENT APPLICATION FEE DETERMINATION RECORD**  
Effective October 1, 2004

Application or Docket Number

1097644

**CLAIMS AS FILED - PART I**

	(Column 1)	(Column 2)
TOTAL CLAIMS	84	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	84 minus 20 =	64
INDEPENDENT CLAIMS	10 minus 3 =	7
MULTIPLE DEPENDENT CLAIM PRESENT <input type="checkbox"/>		

\* If the difference in column 1 is less than zero, enter "0" in column 2

**SMALL ENTITY TYPE  OR OTHER THAN SMALL ENTITY**

RATE	FEE	OR	RATE	FEE
BASIC FEE	395.00	OR	BASIC FEE	790.00
X\$ 9=	576	OR	X\$18=	
X44=	308	OR	X88=	
+150=		OR	+300=	
TOTAL	1269	OR	TOTAL	

**CLAIMS AS AMENDED - PART II**

11/17/06

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	51	Minus 84	0
Independent	5	Minus 10	0
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <input type="checkbox"/>			

**SMALL ENTITY OR OTHER THAN SMALL ENTITY**

RATE	ADDITIONAL FEE	OR	RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X44=		OR	X88=	
+150=		OR	+300=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

4/9/07

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	20	Minus 84	0
Independent	2	Minus 10	0
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <input type="checkbox"/>			

RATE	ADDITIONAL FEE	OR	RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X44=		OR	X88=	
+150=		OR	+300=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

9/26/02

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT C	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	18	Minus 84	0
Independent	18	Minus 10	0
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <input type="checkbox"/>			

RATE	ADDITIONAL FEE	OR	RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X44=		OR	X88=	
+150=		OR	+300=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

\* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.  
 \*\* If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."  
 \*\*\* If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."  
 The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

**Index of Claims**



Application/Control No.

10/996441  
 Examiner

Applicant(s)/Patent under Reexamination

WEINER ET AL  
 Art Unit

Michelle Lawrence

743

√	Rejected
=	Allowed

-	(Through numeral) Cancelled
+	Restricted

N	Non-Elected
I	Interference

A	Appeal
O	Objected

Claim		Date
Final	Original	
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Claim		Date
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Claim		Date
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/976,441	10/29/2004	David F. MacNeil	301700-00069	2133

64770 7590 06/27/2007  
MOMKUS MCCLUSKEY MONROE MARSH & SPYRATOS, LLC  
3051 OAK GROVE ROAD  
SUITE 220  
DOWNERS GROVE, IL 60515-1181

EXAMINER

ROBINSON, ELIZABETH A

ART UNIT	PAPER NUMBER
1773	

MAIL DATE	DELIVERY MODE
06/27/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



Art Unit: 1773

### **DETAILED ACTION**

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 25, 27, 28, 30, 31, 33, 35-38, 40-42, 44-46, and 85-87 are currently pending.

### ***Election/Restrictions***

Applicant's election without traverse of Group I, claims 1-46 and 74-76, in the reply filed on April 9, 2007 is acknowledged.

Claims 77 and 78 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse.

### ***Claim Objections***

Claims 31, 36, 37, 41, 42, 86 and 87 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Claim Rejections - 35 USC § 112***

Claims 30, 33, and 85 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Art Unit: 1773

Claims 30, 33, and 85 contain the trademarks or trade names SANTOPRENE®, GEOLAST®, and VYRAM®. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe the specific thermoplastic vulcanizate to be used and, accordingly, the identification/description is indefinite.

### ***Claim Rejections - 35 USC § 102***

Claims 25, 27, 28, 30, 33, 35, 38, 40, 44, and 85 are rejected under 35 U.S.C. 102(b) as being anticipated by Emery (US 6,431,629). Emery (Column 4, Lines 12 through 38) teaches a three layer truck cargo bed liner which covers the floor of the truck bed. Since the bed liner is providing the same function as the vehicle floor cover, namely protecting the vehicle surface, providing an anti-slip surface, having a center layer for structural support, and being designed so as not to slip in the protected compartment, the examiner is interpreting the term vehicle floor cover to include the truck bed liner.



Art Unit: 1773

Regarding claims 25, 27, 28, 30, 33, and 35, Emery (Column 4, lines 59 through 65) teaches a base sheet (core) wherein a major portion is made of either high density polyethylene (HDPE) or high molecular weight-high density polyethylene (HMW-HDPE), which are polyolefin thermoplastic polymers. Emery (Column 5, lines 52 through 64) teaches a co-extruded top layer that can be more than 50 percent Santoprene®, a thermoplastic vulcanizate. As evidenced by the Thermoplastic Elastomers document from machinedesign.com (third page, thermoplastic vulcanizates section) Santoprene is based on EPDM rubber and polypropylene. Thus, the upper layer has a minor portion of polyolefin (polypropylene). Emery (Column 5, lines 2 through 5) teaches that the core layer can comprise regrind from the trimming process. With an upper layer that comprises Santoprene®, the core layer would have a minor portion of thermoplastic vulcanizate.

Regarding claims 38, 40, and 85, Emery (Column 4, lines 30 through 38) teaches that upper and lower skid-resistant layers can sandwich the core layer. These skid-resistant layers can be made of the same material.

Regarding claim 44, Emery teaches a truck bed liner that is a tray that covers the floor of the truck bed.

Claim 46 is rejected under 35 U.S.C. 102(b) as being anticipated by Padwa (US 5,082,742). Padwa (Column 1, line 17 through 22) teaches a composite material that can be used for a truck bed liner (a vehicle floor cover). The composition of the material is taught in Column 3, lines 49 through 60. The core layer (B) comprises styrene

Art Unit: 1773

acrylonitrile copolymer and does not contain butadiene. The upper layer is acrylonitrile-butadiene-styrene copolymer.

***Claim Rejections - 35 USC § 103***

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Emery in view of ExxonMobile Santoprene® General Product Information Technical Correspondence (TCD00303). Emery teaches a three layer truck cargo bed liner which covers the floor of the truck bed. However, while Emery (Column 6, Line21) states that the upper and lower surfaces have an effectively high coefficient of friction, there is no teaching of the exact kinetic coefficient of friction for the material. Emery (Column 5, line 38) does state that the purpose of the high coefficient of friction is to inhibit movement of material placed on the upper surface. ExxonMobile (Table IX, p 17) teaches that there are many grades of SANTOPRENE® with differing coefficients of friction. The choice of a grade of SANTOPRENE® would be a results effective variable that would determine how much the movement of a material, placed on the surface of the liner, would be inhibited. It would be obvious to one of ordinary skill in the art to choose a material from ExxonMobile, for the truck bed liner of Emery, to create a liner with the desired coefficient of friction on the upper surface, in order to inhibit movement of a desired material placed on the surface of the liner.

Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Emery in view of Dooley (Encyclopedia of Polymer Science and Technology, Coextrusion Article). Emery teaches a three-layer floor cover, but doesn't specify an increase in material

Art Unit: 1773

properties for the cover, over the individual layers. Nevertheless, Dooley (Section 5.1) teaches that, for a coextruded film, favorable interactions of the layers can provide mutual interlayer reinforcement, and the composite acquires better mechanical properties than expected from summation of the components as a blend. It would be obvious to one of ordinary skill in the art to choose materials for the floor cover that would provide these known properties of composite articles.

### ***Response to Arguments***

Applicant's arguments filed April 9, 2007 have been fully considered but the following arguments are not persuasive.

The Applicant has argued that use of the trademarks SANTOPRENE®, GEOLAST® AND VYRAM®, in the claims, does not make them indefinite. Applicant's arguments have been fully considered but they are not persuasive. While trademarks can be used in an application (MPEP 608.01(v)), MPEP 2173.05(u) makes it clear that using a trademark, as a claim limitation, makes a claim indefinite:

#### **2173.05(u) Trademarks or Trade Names in a Claim**

The presence of a trademark or trade name in a claim is not, *per se*, improper under 35 U.S.C. 112, second paragraph, but the claim should be carefully analyzed to determine how the mark or name is used in the claim. It is important to recognize that a trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. See definitions of trademark and trade name in MPEP § 608.01(v). A list of some trademarks is found in Appendix I.

**If the trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of the 35 U.S.C. 112, second paragraph. *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982).**

The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. In fact, the value of a trademark would be lost to the extent

Art Unit: 1773

that it became descriptive of a product, rather than used as an identification of a source or origin of a product. Thus, the use of a trademark or trade name in a claim to identify or describe a material or product would not only render a claim indefinite, but would also constitute an improper use of the trademark or trade name.

If a trademark or trade name appears in a claim and is not intended as a limitation in the claim, the question of why it is in the claim should be addressed. Does its presence in the claim cause confusion as to the scope of the claim? If so, the claim should be rejected under 35 U.S.C. 112, second paragraph.

(Emphasis added.)

Applicant argues that the Fronek reference is not applicable to a composition of polyolefins and thermoplastic vulcanizates. This argument is moot, since all claim limitations to coextrusion compatibility are in canceled claims. Further, as stated above, SANTOPRENE®, GEOLAST®, and VYRAM® are all polyolefin based.

Regarding the Dooley reference, the Applicant argues that there are also teachings of less favorable properties, if the layers interact to cause interlayer destruction. If the interaction of the layers of Emery caused interlayer destruction, the truck bed liner would not function. Without interlayer destruction, it is unclear how a two layer structure would be less stiff than either of the layers.

Regarding the arguments relating to the choice of grade of SANTOPRENE® for the upper layer of the floor mat, as stated above, the choice of grade would be a results effective variable that would determine how much the movement of material placed on the surface of the liner would be inhibited. The ExxonMobile document was used to show that there are a variety of SANTOPRENE® grades which one skilled in the art could choose between, in order to obtain a desired coefficient of friction with a desired material. The applicant does not modify the thermoplastic vulcanizate to make it stickier, but rather has chosen a grade that has the appropriate coefficient of friction.

Art Unit: 1773

Applicant's arguments with respect to claim 46 have been considered but are moot in view of the new grounds of rejection. Applicant has amended this claim to require the layers to be coextruded.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Robinson whose telephone number is 571-272-7129. The examiner can normally be reached on Monday- Friday 8 AM to 4:30 PM.

Art Unit: 1773

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ear



**CAROL CHANEY  
SUPERVISORY PATENT EXAMINER**

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> ( Not for submission under 37 CFR 1.99)	Application Number		10976441	
	Filing Date		2004-10-29	
	First Named Inventor	David F. MACNEIL		
	Art Unit		3612	
	Examiner Name	Elizabeth A. ROBINSON		
	Attorney Docket Number		31700.000069	

U.S.PATENTS						
Examiner Initial*	Cite No	Patent Number	Kind Code <sup>1</sup>	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
/ER/	1	4693507		1987-09-15	William L. DRESEN, et al.	

If you wish to add additional U.S. Patent citation information please click the Add button.

U.S.PATENT APPLICATION PUBLICATIONS						
Examiner Initial*	Cite No	Publication Number	Kind Code <sup>1</sup>	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1					

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FOREIGN PATENT DOCUMENTS								
Examiner Initial*	Cite No	Foreign Document Number <sup>3</sup>	Country Code <sup>2</sup> j	Kind Code <sup>4</sup>	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T <sup>5</sup>
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**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**  
( Not for submission under 37 CFR 1.99)

Application Number	10976441
Filing Date	2004-10-29
First Named Inventor	David F. MACNEIL
Art Unit	3612
Examiner Name	Elizabeth A. ROBINSON
Attorney Docket Number	31700.000069

	1		<input type="checkbox"/>
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**EXAMINER SIGNATURE**

Examiner Signature	/Elizabeth Robinson/	Date Considered	06/18/2007
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> See Kind Codes of USPTO Patent Documents at [www.USPTO.GOV](http://www.USPTO.GOV) or MPEP 901.04. <sup>2</sup> Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>3</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>4</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>5</sup> Applicant is to place a check mark here if English language translation is attached.



<b>Notice of References Cited</b>	Application/Control No. 10/976,441	Applicant(s)/Patent Under Reexamination MACNEIL, DAVID F.	
	Examiner Elizabeth Robinson	Art Unit 1773	Page 1 of 1

**U.S. PATENT DOCUMENTS**

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A US-5,082,742	01-1992	Padwa, Allen R.	428/515
	B US-			
	C US-			
	D US-			
	E US-			
	F US-			
	G US-			
	H US-			
	I US-			
	J US-			
	K US-			
	L US-			
	M US-			

**FOREIGN PATENT DOCUMENTS**

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N				
	O				
	P				
	Q				
	R				
	S				
	T				

**NON-PATENT DOCUMENTS**

*	Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
U	<a href="http://www.machinedesign.com/BDE/materials/bdemat4/rvmat3e.html">http://www.machinedesign.com/BDE/materials/bdemat4/rvmat3e.html</a> , Thermoplastic Elastomers, accessed June 15, 2007.
V	
W	
X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.



## EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
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S4	2506	SANTOPRENE, GEOLAST and VYRAM	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/10 12:07
S5	4349	428/500.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/05 11:54
S6	3	S4 and S5	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/05 12:50
S7	11022	floor near (mat or cover)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 11:51
S8	10	S4 and S7	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/05 13:20
S9	52228	carpet	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/05 13:21

## EAST Search History

S10	44	S9 and S4	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/05 13:21
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S12	11022	floor near (mat or cover)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/18 08:13
S13	94	S11 and S12	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 14:46
S14	16956	(high near molecular near weight near polyethylene)or hmpe	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 08:36
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S17	4651656	multi-layer or multilayer or multi layer	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/18 08:14
S18	2506	SANTOPRENE, GEOLAST and VYRAM	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 11:50
S19	2510	l8and S18	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 08:44
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S23	1394596	automobile or auto or car	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 10:53
S24	596	S22 and S23	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 10:58
S25	271514	"428"/\$.cls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 11:00
S26	157	S25 and S24	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 11:25
S27	1993839	polymer	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 11:25
S28	53	S26 and S27	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 11:28
S29	507793	thermoplastic	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 13:21
S30	226829	S29 and S27	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 13:22
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S32	230	S31 not S28	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 13:25
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S43	271514	"428"/\$.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 14:46
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S46	2	"2623242".PN.	USPAT; USOCR	OR	OFF	2006/10/06 14:57
S47	2	"2915427".PN.	USPAT; USOCR	OR	OFF	2006/10/06 14:57
S48	2	"3555601".PN.	USPAT; USOCR	OR	OFF	2006/10/06 14:58
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S50	1	"5554333".PN.	USPAT; USOCR	OR	OFF	2006/10/06 15:01
S51	1	"6020044".PN.	USPAT; USOCR	OR	OFF	2006/10/06 15:01
S52	1	"6020044".PN.	USPAT; USOCR	OR	OFF	2006/10/06 15:34
S53	195521	truck	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/06 15:37
S54	388445	mat or tray	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/06 15:38

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S55	10819	S53 and S54	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/06 15:38
S56	0	("6977113").URPN.	USPAT	OR	ON	2006/10/06 15:48
S57	13	("5439725").URPN.	USPAT	OR	ON	2006/10/06 16:16
S58	832	floor near tray	USPAT	OR	ON	2006/10/06 16:20
S59	60	S53 and S58	USPAT	OR	ON	2006/10/06 16:17
S60	271514	"428"/\$.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 16:20
S61	12	S60 and S58	USPAT	OR	ON	2006/10/06 16:20
S62	907	door near mat	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/10 08:14
S63	271570	"428"/\$.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/10 08:15
S64	99	S62 and S63	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/10 08:15
S65	21	("3651183"   "3954537"   "4020207"   "4053341"   "4147828"   "4259408").PN. OR ("4377614").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/10 11:43
S66	3509	shore near durometer	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/10 11:43
S67	306	S66 and S63	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/10 11:43
S68	2510	SANTOPRENE, GEOLAST and VYRAM	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/10 12:07
S69	155	S68 and S63	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/10 12:56
S70	501	kinetic adj coefficient adj friction	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/10 15:58
S71	151	S70 and S63	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/10 13:08

## EAST Search History

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S73	2	("4693507").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/10 13:31
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S77	191	S76 and S70	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/10 16:18
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S80	2	S78 and friction	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/10 16:40
S81	2514	santoprene	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/10 16:40
S82	7	S81 and S70	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/10 16:40
S83	84477	ABS.u/c.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/11 13:45
S84	11038	floor near (mat or cover)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/11 13:45



## EAST Search History

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S86	271570	"428"/\$.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/11 13:48
S87	13	S85 and S86	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/11 13:57
S88	388604	mat or tray	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/11 13:57
S89	5772	S88 and S83	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/11 13:57
S90	4659755	multi-layer or multilayer or multi layer	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/11 13:58
S91	3809	S90 and S89	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/11 13:59
S92	1395892	automobile or auto or car	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/11 13:59
S93	836	S91 and S92	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/11 14:01
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S96	443339	(styrene adj acrylonitrile adj copolymer) or san	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/15 15:50
S97	388850	mat or tray	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/12 08:25

## EAST Search History

S98	27294	S97 and S96	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 08:25
S99	11040	floor near (mat or cover)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/12 08:25
S10 0	152	S96 and S99	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 08:30
S10 1	271682	"428"/\$.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/12 08:30
S10 2	16	S101 and S100	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 08:36
S10 3	27819	Acrylonitrile adj butadiene adj styrene	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/15 16:09
S10 4	3424	S101 and S103	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 08:37
S10 5	11	S99 and S104	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 09:17
S10 6	1	S103 and "20040048036"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 09:17
S10 7	2385	(428/517,521).ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 12:28
S10 8	62540	shower	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 12:29
S10 9	29	S107 and S108	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 16:08

## EAST Search History

S11 0	17478	coextrude or coextrusion or coextruding	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 15:31
S11 1	3287	(coextrude or coextrusion or coextruding)same (composition or adjustment)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:39
S11 2	2863	S111 and polymer	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 15:35
S11 3	1332	S112 and S101	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 09:22
S11 4	1259	S113 and method	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 16:00
S11 5	318	S114 and compatibility	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 16:00
S11 6	17	S109 and (S103 or ABS.u/c.)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 12:52
S11 7	30578	styrene adj acrylonitrile	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 12:54
S11 8	4662228	multi-layer or multilayer or multi layer	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/13 12:54
S11 9	14276	S118 and S117	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 12:54
S12 0	27819	Acrylonitrile adj butadiene adj styrene	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 12:55
S12 1	3329	S120 and S119	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 12:56

## EAST Search History

S12 2	17478	coextrude or coextrusion or coextruding	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 12:56
S12 3	391	S122 and S121	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 12:57
S12 4	271682	"428"/\$.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/13 12:57
S12 5	204	S124 and S123	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 12:57
S12 6	42	("3041719"   "3489392"   "3554494"   "3944631"   "4151226"   "4181764"   "4208175"   "4249875"   "4453357"   "4514449"   "4517339"   "4610902"   "4731414"   "4746688"   "4831079"   "4860996"   "4964618"   "5077948"   "5100109"   "5329741"   "5404685"   "5416139"   "5418028"   "5486553"   "5706620"   "5743986"   "5847016"   "5858493"   "5883191"   "5899442"   "5953878"   "6039307"   "6054207"   "6133349"   "6265037"   "6295782"   "6344268"   "6434906"   "D409869"   "D462458").PN. OR ("6827995").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/13 14:31
S12 7	286143	gradient	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/13 14:32
S12 8	1216	S122 and S127	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/13 14:36
S12 9	387	S128 and S124	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/13 14:39
S13 0	204	S129 and (compatible or compatibility)	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/13 16:05
S13 1	7331	(264/16\$,17\$).ccls.	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/13 16:06
S13 2	6	S128 and S131	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/16 09:18
S13 3	101	S122 and S131	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/13 16:17
S13 4	80715	(styrene adj acrylonitrile ) or san.u/c.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 10:38
S13 5	84545	ABS.u/c.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/16 10:39

## EAST Search History

S13 6	27819	Acrylonitrile adj butadiene adj styrene	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 10:39
S13 7	62551	shower	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 10:39
S13 8	1261	S137 and (S136 or S135 or S134)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 10:39
S13 9	4663093	multi-layer or multilayer or multi layer	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/16 10:40
S14 0	749	S139 AND S138	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 10:43
S14 1	271682	"428"/\$.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/16 10:43
S14 2	171	S141 AND S140	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 10:52
S14 3	148	S137 AND ((S135 or S136)and S134)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 10:54
S14 4	44	S143 and S141	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 12:05
S14 5	104	S143 not S144	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 13:05
S14 6	2	("20040048036").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/16 13:06
S14 7	1	S146 and (S134 or S135 or S136)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 13:17

## EAST Search History

S14 8	4546	acrylonitrile-styrene	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 13:20
S14 9	2627	S139 and S148	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 13:21
S15 0	648	S149 and S141	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 13:22
S15 1	1507	S149 and (S135 or S136)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 13:23
S15 2	15	S151 and S137	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 13:23
S15 3	792539	polyethylene	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:39
S15 4	17479	coextrude or coextrusion or coextruding	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:40
S15 5	11533	S154 and S153	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:40
S15 6	3198	S153 same S154	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:44
S15 7	389905	(layer or layering) same composition	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:44
S15 8	1285	S156 and S157	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:45
S15 9	75763	(mixture or mix) same S157	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:47

## EAST Search History

S16 0	282	S159 and S156	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:47
S16 1	65	(coextrusion or coextruding or coextrude or co adj extrusion or co adj extrude) same (compatible or similar) same material same (layers or layer or layered) near15 adjacent	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/17 08:06
S16 2	2772	SANTOPRENE or GEOLAST or VYRAM	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/18 08:18
S16 3	838	thermoplastic near3 vulcanizate	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 15:11
S16 4	751	S163 not S162	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 11:51
S16 5	57465	(floor near3 (mat or cover)) or flooring	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 15:51
S16 6	60	(S162 or S163)and S165	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 11:52
S16 7	16	uniprene	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 13:29
S16 8	209	Versaflex or Versalloy	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 13:29
S16 9	24	S165 and S168	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 13:33
S17 0	9	FORPRENE	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 13:33
S17 1	52	thermoplastic near3 vulcanisate	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 15:11

## EAST Search History

S17 2	543554	(styrene near3 acrylonitrile) or san	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/15 15:51
S17 3	2061	S172 and S165	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/15 15:51
S17 4	990	S173 and (layers or layer or multi-layer or multilayer)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/15 16:11
S17 5	208	(floor near3 (mat or cover))and S174	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 16:11
S17 6	337581	(Acrylonitrile near3 butadiene near3 styrene)or ABS.u/c.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 09:06
S17 7	67327	S172 and S176	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/15 16:11
S17 8	773	S177 and S165	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/15 16:11
S17 9	509	S178 and (layers or layer or multi-layer or multilayer)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/15 16:11
S18 0	75	(floor near3 (mat or cover))and S179	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/15 16:11
S18 1	241911	mat	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/18 08:46
S18 2	4061540	multi-layer or multilayer or (multi near3 layer) or layer or layered	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/18 08:46
S18 3	76085	S181 and S182	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/18 08:48



## EAST Search History

S18 4	2772	SANTOPRENE or GEOLAST or VYRAM	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/18 08:45
S18 5	38	S184 and S183	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/18 08:18
S18 6	2	"US 20040000746"	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2007/06/18 08:44
S18 7	1535	bed near3 liner	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2007/06/18 09:00
S18 8	4	S187 and S184	US-PGPUB; USPAT; USOCR; DERWENT	OR	ON	2007/06/18 08:44
S18 9	2795	SANTOPRENE\$2 or GEOLAST\$2 or VYRAM\$2	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/18 13:02
S19 0	23	S189 not S184	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/18 08:45
S19 1	264447	mat	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 09:04
S19 2	4338235	multi-layer or multilayer or (multi near3 layer) or layer or layered	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 09:05
S19 3	91869	S191 and S192	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 08:50
S19 4	48	S189 and S193	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 08:50
S19 5	10	S194 not S185	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 08:50
S19 6	1564	bed near3 liner	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 09:01

## EAST Search History

S19 7	4	S196 and S189	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 09:01
S19 8	62896	san.u/c.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 09:04
S19 9	999	S191 and S198	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 09:05
S20 0	670	S192 and S199	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 09:05
S20 1	670	s176and S200	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 09:08
S20 3	337625	(Acrylonitrile near3 butadiene near3 styrene)or ABS.u/c.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 12:09
S20 4	282	S203 and S200	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 09:09
S20 5	74	S204 and floor	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 09:09
S20 6	7	S196 and S203 and S198	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 11:52
S20 7	17	("4230761"   "4234653"   "4243725"   "4339502"   "4359506"   "4447488"   "4451512"   "4600648"   "4647509"   "4654255"   "4656094"   "4659785"   "4719153"   "4792477").PN. OR ("5082742").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2007/06/18 10:31
S20 8	359322	extrude or extrusion or coextrude or extruded or coextruded	US-PGPUB; USPAT; USOCR	OR	ON	2007/06/18 12:10
S20 9	2469	S208 and S203 and S198	US-PGPUB; USPAT; USOCR	OR	ON	2007/06/18 11:07
S21 0	969	S209 and (mat or liner or cover)	US-PGPUB; USPAT; USOCR	OR	ON	2007/06/18 10:34
S21 1	377	S209 and (mat or liner)	US-PGPUB; USPAT; USOCR	OR	ON	2007/06/18 10:35

## EAST Search History

S21 2	304	S211 and S192	US-PGPUB; USPAT; USOCR	OR	ON	2007/06/18 10:38
S21 3	30	(floor near3 (mat or cover or tray)) and S203 and S198	US-PGPUB; USPAT; USOCR	OR	ON	2007/06/18 12:02
S21 4	25	S208 and S213	US-PGPUB; USPAT; USOCR	OR	ON	2007/06/18 11:08
S21 5	38	("3509963"   "4235398"   "4535017"   "4539256"   "4726987"   "4726989"   "4767656"   "4837067"   "4849276"   "4880680"   "4926963"   "5030518"   "5051144"   "5108821"   "5169700"   "5240527"   "5251917"   "5277955"   "5298694"   "5325892"   "5362539"   "5431990"   "5472760"   "H000957").PN. OR ("5624726").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2007/06/18 11:19
S21 6	606	rubber near3 toughened	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 11:23
S21 7	22	S216 and S189	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 11:50
S21 8	9905	(skid or antiskid or antiskid or slip or antislip or anti-slip or anti-skid) near3 (mat or base or tray)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 11:52
S21 9	6	S218 and S203 and S198	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 11:52
S22 0	15242	(floor near3 (mat or cover or tray))	US-PGPUB; USPAT; USOCR	OR	ON	2007/06/18 12:01
S22 1	28282	(floor near3 (mat or cover or tray))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 12:58
S22 2	778	S221 and S203	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 12:09
S22 3	565375	extrude or extrusion or coextrude or extruded or coextruded	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 12:10
S22 4	239	S222 and S223	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 12:11
S22 5	10	("2623242"   "2915427"   "3555601"   "4828898"   "5171619"   "5554333"   "6020044").PN. OR ("6953545").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2007/06/18 12:43

## EAST Search History

S22 6	29261	(floor near3 (mat or liner or cover or tray))	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 12:59
S22 7	1116	S226 and S223 and S192	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 13:34
S22 8	9774	(SANTOPRENE\$2 or GEOLAST\$2 or VYRAM\$2) or (vulcanizate or vulcanisate)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/18 13:03
S22 9	29	S227 and S228	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2007/06/18 13:03
S23 0	7974	S226 and S192	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 13:13
S23 1	51	S228 and S230	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 13:13
S23 2	22	S231 not S229	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 13:34
S23 3	2036	S226 and S223	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 13:34
S23 4	50	S228 and S233	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 13:34
S23 5	21	S234 not S229	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 14:31
S23 6	126	S226 and S228	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2007/06/18 14:31
S23 7	38	((DAVID) near2 (MACNEIL)).INV.	US-PGPUB; USPAT	OR	ON	2007/06/19 07:58

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

In re the application of: David F. MACNEIL  
 Application Number: 10/976,441  
 Filed: 29 October 2004  
 Art Unit: 3612  
 Examiner: Elizabeth Robinson  
 Confirmation Number: 2133

<p>CERTIFICATE OF TRANSMISSION BY ELECTRONIC FILING</p> <p>I hereby certify that this correspondence is being transmitted via the USPTO electronic filing system in accordance with 37 CFR §1.6(a)(4) on the date below:</p> <p style="text-align: center;">9 April 2007 Date</p> <p style="text-align: center;">/Jefferson Perkins/ Jefferson Perkins</p>
--

For: VEHICLE FLOOR TRAY

Commissioner for Patents  
 P.O. Box 1450  
 Alexandria, VA 22313-1450

**REPLY TO EXAMINER'S ACTION**

Dear Sir:

This communication is responsive to the Examiner's Action mailed November 7, 2006.

Please amend the application as follows.

IN THE SPECIFICATION

Please replace the following paragraphs and tables in the Specification with the following paragraphs and tables.

Replace Paragraph 0009 of the Specification with the following paragraph:

[0009] Preferably, a major portion of the top layer is a thermoplastic elastomer, such as one of the thermoplastic vulcanizates (TPVs) of proprietary compositions composition sold under the trademarks SANTOPRENE®, GEOLAST® and VYRAM®. VYRAM® thermoplastic vulcanizate (TPV) is particularly preferred. In another embodiment, a major portion of the top

layer can be an ABS polymer blend. Where ABS is used in both the top and central layers, it is preferred that the amount of the polybutadiene phase in the top layer be greater than the amount of this phase in the central layer.

Replace Paragraph 0014 of the Specification with the following paragraph:

**[0014]** According to a related aspect of the invention, a vehicle floor cover is provided that has three layers bonded together, preferably by coextrusion. Major portions of the top and bottom layer consist of thermoplastic elastomer(s). The top and bottom layers have compositions distinct from the central layer, which can be chosen for its relatively low expense. It is preferred that a major portion of the central layer be a polyolefin and that major portions of the top and bottom layers be one or more thermoplastic elastomers. The polyolefin may be selected from the group consisting of polypropylene and polyethylene, and preferably is a high molecular weight polyethylene (HMPE). The thermoplastic elastomer can, for example, be a thermoplastic vulcanizate (TPV) sold under one of the marks SANTOPRENE®, GEOLAST® or VYRAM®, with VYRAM® TPV being particularly preferred. It is also preferred that each of the layers be a polymer blend, with a minor portion of each layer being chosen for its coextrusion compatibility with adjacent layers. For example, the top and bottom layers can consist of a 3:1 weight ratio of VYRAM® TPV/HMPE, and the central layer of a 3:1 weight ratio of HMPE/VYRAM® TPV.

Replace Paragraph 0058 of the Specification with the following paragraph:

**[0058]** According to one aspect of the invention, it is preferred that the tray or cover 100 not be of uniform composition throughout, but rather be a laminate having at least three layers which are bonded together. A preferred composition of the tray 100 is shown in the highly magnified

sectional detail shown in FIGURE 6. In this illustrated embodiment, the tray 100 consists of a top layer 600, a central or core layer 602, and a bottom layer 604. All three layers 600 – 604 preferably consist of one or more water-impervious thermoplastic polymers, but layers 600 and 604 have properties which are at least different from core layer 602 and may even have properties which are different from each other. The trilayer cover is shown to be a three-dimensional floor tray in the drawings, but can also be a more two-dimensional floor mat of more limited coverage. Top layer 600 is made from a material selected for its tactile properties, its relatively high static and dynamic coefficients of friction with respect to typical footwear, and its resistance to chemical attack from road salt and other substances into which it may come into contact. Top layer 600 preferably includes a major portion of a thermoplastic elastomer such as VYRAM®, SANTOPRENE® or GEOLAST® thermoplastic vulcanizates (TPVs), which are proprietary compositions available from Advanced Elastomer Systems. VYRAM® TPV is preferred, particularly Grade 101-75 (indicating a Shore A hardness of 75). An upper surface 606 of the top layer 600 may be textured by a “haircell” pattern or the like so as to provide a pleasing tactile feel and visual appearance, as may a lower surface of the bottom layer 604.

Replace Paragraph 0061 of the Specification with the following paragraph:

**[0061]** Particularly where the thermoplastic elastomer and the polyolefin are respectively selected as VYRAM® TPV and HMPE, the proportion by weight of the thermoplastic elastomer to polyolefin material in layer 600 is preferably selected to be about 3:1. It has been discovered that some polyolefin material needs to be present in layer 600 for coextrusion compatibility with central layer 602, in the instance where a major portion of the layer 602 is also a polyolefin.

Replace Paragraph 0065 of the Specification with the following paragraph:

**[0065]** It is preferred that the central layer 602 be a blend, and in that instance a minor portion of layer 602 is composed of a material selected for its coextrusion compatibility with top layer 600 (and bottom layer 604 described below). In the illustrated embodiment, this minor portion is a thermoplastic elastomer such as SANTOPRENE® TPV, GEOLAST® TPV or VYRAM® TPV. VYRAM® Grade 101-75 TPV is particularly preferred. For layer 602, and particularly where the polyolefin and the thermoplastic elastomer are respectively selected as HMPE and VYRAM® TPV, the proportion by weight of polyolefin to thermoplastic elastomer is preferred to be about 3:1. More generally, the percentages of the minor portions in layers 600 and 602 (and layer 604) are selected as being the minimum necessary for good coextrusion compatibility.

Replace Paragraph 0067 of the Specification with the following paragraph:

**[0067]** Bottom layer 604 has a lower surface 300 which will be adjacent the vehicle foot well top surface. Typically, this surface is carpeted. The bottom layer 604 is a thermoplastic polymer material selected for its wear characteristics, as well as its sound-deadening qualities and a yieldability that allows the layer 604 to better grip “hard points” in the vehicle foot well surface as well as conform to foot well surface irregularities. Preferably, a major portion of the layer 604 is composed of a thermoplastic elastomer, such as SANTOPRENE® TPV, GEOLAST® TPV or, preferably, VYRAM® TPV. VYRAM® Grade 101-75 TPV is particularly preferred.

Replace Paragraph 0068 of the Specification with the following paragraph:

**[0068]** It is preferred that the bottom layer 604 be a polymer blend. In this instance, a minor portion of the bottom layer 604 is selected for its coextrusion compatibility with the core layer



602. Where core layer 602 is mostly made of a polyolefin material, it is preferred that a polyolefin be used as the minor portion of the bottom layer 604. This polyolefin can be, for example, polypropylene or polyethylene, and preferably is HMPE. The amount of the minor portion is selected to be that minimum amount that assures good coextrusion compatibility. Where the polyolefin and the thermoplastic elastomer are respectively chosen to be HMPE and VYRAM® TPV, it has been found that the thermoplastic elastomer: polyolefin ratio by weight in the layer 604 should be about 3:1.

Replace Paragraph 0074 of the Specification with the following paragraph:

**[0074]** The illustrated embodiment is a triextrusion of three layers 600 – 604. In alternative embodiments, any or all of layers 600 – 604 may be composed of sublayers. A manufacturer may want to do this, for example, to gradually phase in one material for substitution for another material as one moves from the center of the tray thickness to either or both surfaces 300, 606. A manufacturer may also want to include several sublayers to ease compatibility problems with a core layer on the one hand and the external layer(s) on the other, intervening layers acting as “buffer” layers that are compatible with the core and external layers, even where the core and external layers are not compatible with each other. ~~[Question as to whether this suggestion should be saved for a future patent specification]~~

Replace Paragraph 0075 of the Specification with the following paragraph:

**[0075]** A preferred embodiment of the present invention combines the high coefficient of friction, tactile qualities, sound-deadening and yieldability obtainable with a thermoplastic elastomer with the modest cost of a polyolefin. To demonstrate the technical advantages of a

triextrusion tray over monoextruded prior art structures, tests measuring tensile strength, shear strength, flexural modulus and coefficient of friction were performed on (1) a triextrusion sheet material made and used according to the invention, (2) a monoextruded sheet of 75 wt. pct. VYRAM® TPV/ 25 wt. pct. HMPE, and (3) a monoextruded sheet of wt. pct. VYRAM® TPV/ 75 wt. pct. HMPE. The particular tests and their results are described below.

Replace Paragraph 0077 of the Specification with the following paragraph:

[0077] These tests determined static and kinetic coefficients of friction of a sheet of triextrusion material with respect to an object meant to emulate an typical occupant shoe outsole. This “shoe” was composed of Shore A Durometer 60 neoprene rubber, formed as a “sled” measuring 2.5 in. x 2.5 in. x 0.238 in. The “shoes” were drawn across an upper, textured surface of a .120 in. triextrusion sheet formed according to a preferred embodiment of the invention measuring 4 in. x 12 in. according to the procedure set forth in ASTM D 1894-01. The triextrusion sheet had, as its top layer, a blend of 75 wt. pct. VYRAM® Grade 101-75 TPV/25 wt. pct. HMPE. The core layer was 75 wt. pct. HMPE/25 wt. pct. VYRAM® Grade 101-75 TPV. The bottom layer was a blend of 25 wt. pct. HMPE/75 wt. pct. VYRAM® Grade 101-75 TPV. The bottom and top layers each comprised about 12.5% of the sheet thickness while the middle core layer comprised about 75% of the sheet thickness. Results are tabulated as follows.

Replace Paragraph 0078 of the Specification with the following paragraph (the table following this paragraph is unchanged and should be retained):

[0078] Five neoprene rubber “sleds” fabricated as above were drawn across a 4 in. x 12 in. sheet of a single-extrusion 75 wt. pct. HMPE/25 wt. pct. VYRAM® Grade 101-75 TPV, according to ASTM D 1894-01. Results are tabulated below.

Replace Paragraph 0079 of the Specification with the following paragraph:

[0079] The above tests show that with respect to a typical shoe sole composition, a material consisting mostly of a thermoplastic elastomer like VYRAM® TPV exhibits a higher coefficient of friction than a material consisting mostly of a high molecular weight polyolefin.

Replace Paragraph 0080 of the Specification with the following paragraph:

[0080] These tests compared the tensile strength of a sheet of triextruded material as above described with a sheet of single-extruded blend of material consisting of 75 wt. pct. VYRAM® TPV, Grade 101-75, and 25 wt. pct. HMPE, and further with a sheet of a single-extruded blend of material of 75 wt. pct. HMPE and 25 wt. pct. VYRAM® Grade 101-75 TPV. The tested single-extruded VYRAM® TPV-dominated sheet was approximately .070 in. thick, while the HMPE-dominated sheet was approximately .137 in. thick. The triextrusion sheet was about .120 in. thick. The triextrusion sheet, the single-extruded VYRAM® TPV-dominated sheet and the single-extruded HMPE-dominated sheet were die-cut into samples having an average width of 0.250”. The test performed was according to the ASTM D 638-03 testing standard. A cross-head speed of 20 in. / min. was used. The extensometer was set at 1000% based on 1.0” gauge length. Samples were conditioned at 40 hours at 23 Celsius and 50% relative humidity prior to testing at these conditions. Test results are tabulated below.

Replace the table following Paragraph 0080 of the Specification with the following

table:

	Test Number	Tensile Strength at Yield (psi)	Elongation at Yield (%)	Tensile Stress at Break (psi)	Elongation at Break (%)	Tensile Modulus (Youngs) (psi)
<b>Tri-Extrusion</b>	1	1680	24	1530	730	30800
	2	1710	21	1610	710	30100
	3	1700	21	1620	730	32200
	4	1740	19	1660	770	32700
	5	1690	17	1630	700	24400
	Average	1700	20	1610	730	30000
	Std.Dev.	23	3	48	27	3320
<b>75%Vyram® TPV /25%HMPE</b>	1	1040	53	1400	620	15900
	2	1010	45	1430	630	17100
	3	1050	98	1390	640	17100
	4	1010	62	1430	620	16700
	5	1030	88	1420	610	17100
	Average	1030	69	1410	620	16800
	Std.Dev.	18	23	18	11	522
<b>75%HMPE/25%Vyram® TPV</b>	1	919	63	1130	630	30200
	2	914	61	1110	630	34100
	3	925	69	1120	650	29500
	4	910	67	1110	650	21500
	5	912	68	1140	700	24000
	Average	916	66	1120	650	27900
	Std.Dev.	6	3	13	29	5060

Replace the table following Paragraph 0082 of the Specification with the following table:

Sample Name	Test Number	Thickness (in.)	Shear Force (lbf)	Shear Strength (psi)	
<b>Tri-Extrusion</b>	1	0.119	747	2000	
	2	0.122	783	2040	
	3	0.119	747	2000	
	4	0.121	757	1990	
	5	0.117	734	2000	
	Average			754	2010
	Std. Dev.			18	19

<b>75% VYRAM® TPV/</b>	1	0.072	423	1870
<b>25% HMPE</b>	2	0.070	416	1890
	3	0.073	489	2130
	4	0.072	481	2130
	5	0.073	455	1980
	Average		453	2000
	Std. Dev.		33	126
<b>75% HMPE/</b>	1	0.135	680	1600
<b>25% VYRAM</b>	2	0.137	688	1600
<b>® TPV</b>	3	0.134	687	1630
	4	0.136	724	1690
	5	0.137	687	1600
	Average		693	1620
	Std. Dev.		18	39

Replace Paragraph 0083 of the Specification with the following paragraph:

**[0083]** The above test data show that, as normalized for the different thicknesses tested, the triextrusion material is similar in shear strength to the 75%VYRAM® TPV/ 25% HMPE single-extrusion blend, and superior in shear strength to the 75%HMPE/25%VYRAM® TPV single-extrusion blend.

Replace Paragraph 0084 of the Specification with the following paragraph:

**[0084]** Tests were performed to determine the flexural properties of samples of a tri-extrusion material of the above-described formulation, a 75 wt. pct. Vyram® TPV/25 wt. pct. HMPE material, and a 75 wt. pct. HMPE/25wt. pct. VYRAM® TPV material (in all tests. the thermoplastic elastomer used was VYRAM® Grade 101-75 TPV). The tests were performed according to the ASTM D790-03 test method, Method I, Procedure A. For the tri-extrusion the dimensions of the samples averaged 0.490” x 0.0119” x 5.00”, the span length was 1.904 in., and the cross-head speed was 0.051 in./min. For the 75%Vyram® TPV/25%HMPE material, the

dimensions of the samples averaged 0.484” x 0.072” x 5.00”, the span length was 1.152 in., and the cross-head speed was 0.031 in./min. For the 75%HMPE/25%Vyram® TPV material, the dimensions of the samples averaged 0.50” x 0.138” x 5.00”, the span length was 2.208 in., and the cross-head speed was 0.059 in/min. In all tests, the span-to-depth ratio was 16 +/- 1:1, the radius of the supports was 0.197 in., and the radius of the loading nose was 0.197 in. The tests were performed at 23 Celsius and 50% relative humidity and the samples conditioned for 40 hours at this temperature and humidity before the tests were performed. Results are tabulated below.

Replace the table appearing after Paragraph 0084 in the Specification with the following table:

Sample Name	Test Number	Flexural Stress At 5% Deflection (psi)	Flexural Modulus (tangent*)(psi)
<b>Triextrusion</b>	1	294	33400
	2	317	36000
	3	304	33500
	4	318	35700
	5	305	33200
	Average	308	34400
	Std. Dev.		
<b>75%Vyram® TPV/ 25%HMPE</b>	1	234	15400
	2	238	16400
	3	230	14500
	4	225	14300
	5	228	14300
	Average	231	15000
	Std. Dev.	5	915
<b>75%HMPE/ 25%Vyram® TPV</b>	1	508	13000
	2	505	13800
	3	496	13100
	4	497	12900
	5	518	13800
	Average	505	13300

	Std. Dev.	9	444
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IN THE CLAIMS

Please amend the claims as shown in the following Claim Listing. In particular, Applicant amends Claims 1, 25, 27, 28, 30, 31, 33, 35 -- 38, 40 -- 42 and 46, cancels Claims 2 – 24, 26, 29, 32, 34, 39, 43 and 74 – 78, and adds Claims 85 -- 87.

**CLAIM LISTING**

1. (Currently amended) A The vehicle floor cover of Claim 25, wherein;  
comprising:  
a thermoplastic polymer central layer having a top surface and a bottom surface;  
a thermoplastic polymer top layer bonded to the top surface of the central layer  
and having a composition different from the central layer, a top surface of the top layer  
exhibiting exhibits a kinetic coefficient of friction of at least about 0.82 with respect to neoprene  
rubber that has having a Shore A durometer reading of 60; and  
a thermoplastic polymer bottom layer bonded to the bottom surface of the central  
layer and having a composition different from the central layer.

2. (Canceled)

3. (Canceled)

4. (Canceled)

5. (Canceled)

6. (Canceled)

7. (Canceled)



8. (Canceled)

9. (Canceled)

10. (Canceled)

11. (Canceled)

12. (Canceled).

13. (Canceled)

14. (Canceled)

15. (Canceled)

16. (Canceled)

17. (Canceled)

18. (Canceled)

19. (Canceled)

20. (Canceled)

21. (Canceled)

22. (Canceled)

23. (Canceled)

24. (Canceled)

25. (Currently amended) A vehicle floor cover, comprising:

a predominately polyolefin thermoplastic polymer central core layer having a top surface and a bottom surface, a minor portion of the core layer being a thermoplastic vulcanizate (TPV); and

a thermoplastic polymer top layer coextruded with the core layer and having as a major portion thereof a thermoplastic vulcanizate (TPV) and having as a minor portion thereof a polyolefin composition different from the central layer and bonded to the top surface of the central layer, a major portion of the top layer being composed of a thermoplastic elastomer; and

a thermoplastic polymer bottom layer having a composition different from the central layer and bonded to the bottom surface of the central layer, a major portion of the bottom layer being composed of a thermoplastic elastomer.

26. (Canceled)

27. (Currently amended) The floor cover of Claim ~~26~~ 25, wherein the polyolefin of the core layer is selected from the group consisting of polyethylene and polypropylene.

28. (Currently amended) The floor cover of Claim 27, wherein ~~the~~ a major portion of the ~~central~~ core layer consists of high molecular weight polyethylene (HMPE).

29. (Canceled)

30. (Currently amended) The floor cover of Claim ~~29~~ 25, wherein the thermoplastic ~~elastomer~~ vulcanizate of the core layer is selected from the group consisting of SANTOPRENE® TPV, GEOLAST® TPV and VYRAM® TPV.

31. (Currently amended) The floor cover of Claim ~~29~~ 25, wherein in the core ~~central~~ layer, the weight ratio of polyolefin to thermoplastic ~~elastomer~~ vulcanizate is about 3:1.

32. (Canceled)

33. (Currently amended) The floor cover of Claim 25, wherein the major portion of the top layer is a thermoplastic ~~elastomer~~ vulcanizate selected from the group consisting of SANTOPRENE® TPV, GEOLAST® TPV and VYRAM® TPV.

34. (Canceled)

35. (Currently amended) The floor cover of Claim 34 25, wherein the polyolefin of the top layer is selected from the group consisting of polypropylene and polyethylene.

36. (Currently amended) The floor cover of Claim 35, wherein the polyolefin of the top layer is high molecular weight polyethylene (HMPE).

37. (Currently amended) The floor cover of Claim 34 25, wherein in the top layer, the ratio by weight of the thermoplastic ~~elastomer~~ vulcanizate to the polyolefin is about 3:1.

38. (Currently amended) The floor cover of Claim 25, and further comprising a thermoplastic polymer bottom layer coextruded with the core layer and the top layer, a minor portion of the bottom layer composed of a polyolefin, a ~~wherein~~ the major portion of the bottom layer being composed of is a thermoplastic vulcanizate elastomer ~~selected from the group consisting of SANTOPRENE®, GEOLAST® and VYRAM®.~~

39. (Canceled)

40. (Currently amended) The floor cover of Claim ~~39~~ 38, wherein the polyolefin of the bottom layer is selected from the group consisting of polypropylene and polyethylene.

41. (Currently amended) The floor cover of Claim 40, wherein the polyolefin of the bottom layer is high molecular weight polyethylene (HMPE).

42. (Currently amended) The floor cover of Claim ~~39~~ 38, wherein in the bottom layer, the weight ratio of the thermoplastic ~~elastomer~~ vulcanizate to the polyolefin is about 3:1.

43. (Canceled)

44. (Original) The floor cover of Claim 25, wherein the floor cover is a vehicle floor mat or a vehicle floor tray.

45. (Original) The floor cover of Claim 25, wherein one or more of the shear strength per cross-sectional area, tensile strength per cross-sectional area and stiffness per cross-sectional area of the floor cover is greater than that of the layers from which the floor cover is composed.

46. (Currently amended) A vehicle floor cover, comprising:  
coextruded thermoplastic polymer top and core layers. ~~The floor cover of Claim~~ 25, wherein the ~~central~~ core layer is comprised of a material selected from the group consisting of acrylonitrile butadiene styrene copolymer (ABS) and styrene acrylonitrile copolymer (SAN), and wherein the top layer is ~~and bottom layers are~~ comprised of a grade of ABS where the percentage by weight of polybutadiene is greater than the percentage by weight of the polybutadiene in the ~~central~~ core layer.

47. – 84. (Canceled)

85. (New) The vehicle floor cover of Claim 38, wherein the thermoplastic vulcanizate in the bottom layer is selected from the group consisting of SANTOPRENE® TPV, GEOLAST® TPV and VYRAM® TPV.

86. (New) The vehicle floor cover of Claim 46, and further comprising a bottom layer coextruded with the top and core layers, the bottom layer comprised of a grade of ABS in which the percentage by weight of polybutadiene is greater than the percentage by weight of the polybutadiene in the core layer.

87. (New) The vehicle floor cover of Claim 25, wherein the vehicle floor cover has a flexural modulus which is less than or equal to about 36,000 psi.

**REMARKS**

Applicant has added new Claims 85 and 86 to recite limitations removed from the independent claims from which they respectively depend, as Applicant does not believe these limitations are necessary for the patentability of the base claims from which they were removed. Claim 85 has been added to more particularly define the TPV recited in Claim 38. Claim 86 has been added to recite the "bottom layer" of Applicant's vehicle floor tray. These dependent claims are patentable at least for the reasons presented herein for the claims from which they depend (Claims 38 and 46).

Claim 87 has been added to depend from Claim 25 and to recite that the flexural modulus of the vehicle floor cover is less than or equal to about 36,000 psi. This is a measurement of the relative stiffness or floppiness of the cover and has been added to further distinguish Applicant's vehicle floor cover from the heavily HMW-HPE -- dominated truck bed liner of Emery US 6,431,629, which will be much stiffer. The patentability of this new dependent claim is further discussed below.

After amendment, there are two independent claims in the case: Claim 25, directed to those embodiments using combinations of TPVs and polyolefins, and Claim 46, directed to those embodiments using blends of different grades of ABS or ABS and SAN.

Applicant below addresses the Examiner's objections and rejections in the order in which they appear in the Examiner's Action of 7 November 2006.

Objection to Specification

The Examiner objected to the Specification because of the inclusion of the final line in Paragraph 0074. This typographical error has been corrected by the amendment to Paragraph 0074 presented above.

Objection to Claim 23

The Examiner's objection to Claim 23 is moot, because the above amendment cancels this claim.

Election/Restrictions

Applicant affirms the election of Group I, consisting of Claims 1 – 46 and 74 – 76. Applicant has canceled Group II (Claims 77 – 78) and reserves the right to place these claims in a divisional patent application.

Claim Rejections – indefinite under 35 USC §112: Shore A Durometer Reading

The Examiner rejected Claim 1 as indefinite because of an alleged ambiguity of what material the Shore A durometer reading pertained to. Applicant has amended Claim 1 to *inter alia* adopt the Examiner's proposed wording. The neoprene rubber is the material having the Shore A durometer reading of 60.

Claim Rejections – indefinite under 35 USC § 112: Use of Trademarks

The Examiner rejected Claims 8, 10, 16, 30, 33 and 38 as containing the trademarks SANTOPRENE®, GEOLAST® and VYRAM®. Applicant has canceled claims 8, 10 and 16 for other reasons, but in their present condition, Claims 30, 33 and 85 continue to identify certain thermoplastic vulcanizates (TPVs) by these trademarks. Applicant therefore respectfully traverses



this ground for rejection for the reasons given below.

The first paragraph of Section 112 requires the Applicant to set forth a written description of the invention, and the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains to make and use the same, and to set forth the best mode contemplated by the inventor in carrying out the invention. The second paragraph of Section 112 requires the Applicant to set forth one or more claims particularly pointing out and distinctly claiming the subject matter which Applicant regards as his invention. Applicant's use of the names of three families of proprietary substances, which happen to be registered trademarks, does not render the claims less definite – rather the reverse, as the naming of these compositions identifies three closely related families of thermoplastic vulcanizates, well known to the art and well characterized by their properties, and nothing else.

Applicant attaches hereto as Exhibits 1 and 2 a pair of product specifications for the VYRAM® and GEOLAST® composition families. For the SANTOPRENE® composition family, Applicant relies on the ExxonMobil publication made of record by the Examiner. All of these compositions are available from a single source (Advanced Elastomer Systems, a subsidiary of ExxonMobil Corporation). Each of them identifies a family of closely related proprietary compositions that are available from this source and from no other. As these product specifications make clear, GEOLAST®, SANTOPRENE® and VYRAM® are all “thermoplastic vulcanizates” (TPVs) in which partially or completely crosslinked particles are present in a noncrosslinked thermoplastic phase. These TPVs cannot be obtained from any other source, and Applicant submits that if he had omitted identifying them with trademarks, the specification (and the claims supported thereby) would be rendered less clear, less distinct, less concise, less exact, less enabling – and less

understandable by persons skilled in this art.

These thermoplastic vulcanizates are proprietary compositions and Applicant does not know, nor does Applicant need to know, their precise chemical formulation. The three composition families cannot be specified in any other way. All Applicant is charged with doing is supplying sufficient detail that persons skilled in this art will know what materials to use to make Applicant's vehicle floor covers, and particularly pointing out and distinctly claiming that in certain preferred embodiments, Applicant's invention incorporates one of them. This the Applicant has done.

The Examiner states that a trademark or trade name is used to identify a source of goods, and not the goods themselves, and that therefore a trademark or trade name does not identify or describe the goods associated with the trademark or trade name.

Preliminarily, Applicant must respectfully disagree with the Examiner's use of "trade name" here – and also with Form Paragraph 7.35.01 (MPEP 706.03(k)) on the basis of which this rejection apparently was written. A trade name identifies only a business (such as ExxonMobil Corporation or Advanced Elastomer Systems) without reference to any particular goods or services which might be provided by the business. *See Black's Law Dictionary*, 4<sup>th</sup> Ed. But Applicant agrees with the Examiner that, as a general proposition, a *trademark* primarily identifies a source or origin of goods. In this instance, however, the trademarks GEOLAST®, SANTOPRENE® and VYRAM® identify not only the source of the goods – they uniquely and definitely describe and identify the goods themselves. This is not a case where there are several manufacturers of these materials, each manufacturer denoting itself as a particular source or origin of the goods by using a trademark (and distinguishing this source from other sources of the same goods). This is a case in which particular, unique varieties of thermoplastic vulcanizates are identified by separate names, which also just

happen to function as trademarks. These named TPVs are not fungible with others, like brands of flour or sugar might be. They each identify their compositions as distinctly as a chemical formula. The products which they identify are not mutable in their characteristics (as are, by way of contrast, the automobiles identified with the mark MUSTANG® over the years) but rather have consistent properties year after year. Persons of ordinary skill in this art routinely specify these materials by their trademarks, rather than by generic names, for such generic names, at a level more detailed than “thermoplastic vulcanizate”, do not exist. *See, e.g.*, the recitation of such trademark / proprietary chemical compositions in Fronek et al. US 5,848,769 and Emery US 6,431,629 B1, both cited by the Examiner. Where, as here, trademarks have definite meanings, their use in patent applications is permissible. MPEP 608.01(v).

Since each of the specified materials inherently is a thermoplastic vulcanizate, Applicant has amended the specification and the claims to point out this fact. By adding a noun to follow the name of each trademarked material, Applicant seeks to lend definiteness to the specification and claims. Applicant's specification and claims now provide all the identification and definiteness which are required or indeed which are possible to make with respect to these materials.

*Rejection of Claims as Anticipated Or Made Obvious by Emery US 6,431,629*

The Examiner rejected Claims 25 – 30, 33 – 36, 38 – 41, 44 and 74 – 76 as anticipated by Emery (US 6,431,629) (hereinafter, “Emery”), rejected Claims 1 – 5, 8 – 13, 15 – 19 and 22 as obvious in view of a combination of Emery and ExxonMobil Santoprene® General Product Information Technical Correspondence (TCD00303) (hereinafter, “ExxonMobil”), rejected Claims 31, 32, 37, 42 and 43 as obvious in view of a combination of Emery and Fronck et al. US 5,848,769 (“Fronck”), rejected Claims 6, 7, 14, 20 and 21 as obvious in view of a three-way combination of Emery, ExxonMobil and Fronck, rejected Claim 45 as obvious in view of a combination of Emery and an article by Dooley in the Encyclopedia of Polymer Science and Technology (“Dooley”), and rejected Claim 23 as obvious in view of a three-way combination of Emery, ExxonMobil and Dooley. Applicant respectfully traverses these grounds for rejection as they apply to the claims as amended.

Emery discloses a truck bed liner in which a base sheet is selected to be either high density polyethylene (HDPE) or more preferably high molecular weight, high density polyethylene (HMW-HDPE). To this are added anti-slip upper and lower layers preferably having a major portion (preferably 60%) of very low density polyethylene (VLDPE) and most of the remainder HMW-HDPE. Emery, Column 4 line 59 – Column 5 line 9. Because the base sheet 82 can be made up in part of regrind from the trimming process, a small amount of VLDPE can be in it. Id., Col. 5, lines 8 – 9. Given that the relatively VLDPE-rich top and bottom layers are only about 20% of the thickness of the liner (e.g., .050 in. of a .230 in. liner, Emery at Col. 4, lines 47 – 51), the regrind is going to be heavily HMWPE dominated and the resultant core sheet even more so. Applicant

estimates that the HMWPE content of the Emery core layer will be above 90% by weight.

Emery states that VLDPE “is a semicrystalline ethylene copolymer with elastic properties approaching those of uncured EPM and EPD rubbers to serve as an impact modifier for polypropylene.” *Id.*, Col. 5, lines 15 – 18. Supposing that VLDPE might just fit within the definition of “thermoplastic elastomer”, what it is not is a “thermoplastic vulcanizate”, a type of material having properties superior to polyolefins in terms of compression set and oil resistance. See Ex. 3 hereto, Vyram 9000 General Product Bulletin, p. 6. Applicant attaches, as Exhibit 3 hereto, [http://www.bpf.co.uk/bfpindustry/plastics\\_materials\\_thermplassrubber\\_TPR.cfm](http://www.bpf.co.uk/bfpindustry/plastics_materials_thermplassrubber_TPR.cfm), which includes (p. 2) a definition of “thermoplastic vulcanizate”, to show that the term is understood by persons skilled in this art to mean a subset of thermoplastic elastomers (TPEs) in which crosslinked particles of rubber are embedded in a noncrosslinked phase. VYRAM®, SANTOPRENE® and GEOLAST® are all TPVs. Claim 25 now requires that each of the top and core layers have a thermoplastic vulcanizate in them (rather than a more generally defined thermoplastic elastomer) which produces at least four technical advantages, three of which are not seen in Emery:

- a. the top layer has a coefficient of friction which is much higher than HMWPE by itself, HMWPE being relatively very slippery;
- b. the top layer has enhanced properties of compression set and oil resistance relative to a polyolefin;
- c. the core layer, to which a TPV has been added, has a sufficiently low flexural modulus that it will more readily conform to or “lay down” into a vehicle foot well for which the cover is designed; and

d. adding significant amounts of TPV and polyolefin to both the top and core layers ensures their coextrusion compatibility.

In an alternative embodiment, Emery states that the anti-slip frictional layers can be co-extruded as a film which is a blend of KRATON® thermoplastic rubber material and SANTOPRENE®. Emery, Col. 5, lines 52 – 60. What Emery does not show or suggest, however, is the combination, in any of his layers (base sheet or top or bottom layers) of a thermoplastic vulcanizate and a polyolefin. Emery does not show or suggest how providing both a polyolefin and a thermoplastic vulcanizate in EACH of the layers aids in their coextrusion. Emery does not show how adding a significant amount of TPV to the core layer can modify its flexural modulus. Relative to Claim 45, Emery does not disclose or suggest how the composite article has structural properties which are superior, per unit cross-sectional area, to those of any one of the layers taken alone.

The Examiner cites Fronek for the general proposition that polymer blends can be selected for coextrusion compatibility. Applicant submits that the specific (rather than general) teaching in Fronek cannot be obviously extended to layers composed of polyolefins and thermoplastic vulcanizates. Rather than a vehicle floor tray having rubbery surfaces with a heightened coefficient of friction, Fronek is directed to a “drag reduction article” “suitable for use in aerospace applications” (Col. 1, lines 53 – 54). The polymers to be blended by Fronek, methacrylates and fluoropolymers, are dramatically different in their chemical and physical properties from the polyolefins and thermoplastic vulcanizates used in the invention. Fronek's disclosure does not discuss blending these last compositions and his specific teaching cannot be extended to encompass them.

The Examiner cites Dooley (Section 5.1, p. 12) for the general proposition that, for a

coextruded film, favorable interactions *can* provide mutual interlayer reinforcement, and that the composite can acquire better mechanical properties than expected from summation of the components as a blend. (Emphasis added.) Applicant respectfully submits that the Examiner is selectively quoting from this reference. Also in Dooley there can be found (Section 5.1, p. 12):

Unfavorable layer interactions can lead to mutual interlayer destruction, i.e., failure in one layer leads to premature failure in normally ductile layers, causing catastrophic failure of an entire composite. In this case, the cracked layer acts as a notch to localize stress concentration in adjacent layers.

And, at p. 13:

Therefore, although the law of mixture calculations for multilayer films may be used for an approximate estimate of strength, it is inadequate for predicting layer interactions and ultimate film performance.

The Dooley article, *when read as a whole*, therefore stands for the proposition opposite from the one the Examiner is taking: that the strengths of composite layers are unpredictable, and that therefore it would *not* have been obvious to obtain a multilayer polymer structure with synergistically enhanced physical properties. Claim 45 is patentable for this reason alone.

The Examiner cited ExxonMobil for its description of different coefficients of friction relative to different grades of SANTOPRENE® TPV. This reference does not discuss the use of thermoplastic vulcanizates as upper or lower layers in a vehicle floor cover, nor does it discuss how TPV – dominated layers might be successfully coextruded with a predominately polyolefin central layer. The Examiner suggests that the appropriate coefficient of friction can be obtained by choosing which *grade* of SANTOPRENE® is used. While ExxonMobil gives (relative to different materials) coefficients of friction for different *grades* of pure SANTOPRENE®, ExxonMobil neither discloses nor suggests raising the coefficient of friction of a wear surface of a thermoplastic vehicle floor tray by blending a thermoplastic vulcanizate with an otherwise

slippery polyolefin. Further, ExxonMobil does not disclose any coefficient of friction with neoprene rubber – chosen by Applicant to emulate a typical vehicle occupant's casual footwear.

For the above reasons, Emery, either alone or in combination with the various secondary references discussed above, does not anticipate or make obvious Applicant's claimed coextruded multilayer vehicle floor covers, either as composed of TPV/polyolefin blends or of ABS/SAN blends.

*Rejection of Claims as Anticipated or Obvious in View of Nakasuji US 2004/0048036*

The Examiner has rejected Claims 25, 46 and 74 – 76 as anticipated by Nakasuji US 2004/0048036 (“Nakasuji”), and has rejected Claim 24 as obvious in view of a combination of Nakasuji and ExxonMobil. Applicant respectfully traverses these grounds for rejection relative to Claims 25 and 46 as amended. Claims 24 and 74 – 76 have been withdrawn.

Nakasuji discloses two kinds of a carpeted floor mat. Fig. 8 of Nakasuji is an example of the first kind, which has a carpet layer 21, a foam layer 22, a hot-melt adhesive sheet 25, a “fine-fibers nonwoven layer” 23, a bottom foam layer 24 and “slip resistant resins” 26. The “slip resistant resins” 26 are not a coherent layer but are applied as “projected portions”, such as a pattern of dots or grids. Nakasuji, Paras. 90 – 91. An example of the second kind of floor mat is shown in Fig. 12, which includes a carpet layer 41, a “first mixture layer” 42, a “first foam layer” 43, a “second mixture layer” 44 and a “second foam layer” 45.

As allegedly meeting the Applicant's thermoplastic central layer, the Examiner pointed to Paragraph 68 of Nakasuji (discussing the “fine-fibers nonwoven layer” 23 of his first embodiment), which listed 24 different (both thermoplastic and thermosetting) polymers, including ABS and SAN but not including any polyolefin or TPV. For the top layer, the Examiner pointed to Paragraphs 178



and 179 of this reference (discussing the composition of “mixture layer” 42 or 44 of Nakasuji’s second embodiment), which list 28 different substances, two of which are ABS and SAN but none of which is a polyolefin or a TPV. For the bottom layer, the Examiner cited Paragraph 97 (discussing “slip resistant resins” 26 in Nakasuji’s first embodiment), which lists 17 different compounds, of both thermoplastic and thermosetting varieties, two of which are ABS and SAN but none of which are a polyolefin or a TPV. ABS and SAN are, outside of these laundry lists of widely disparate and in some instances incompatible materials, nowhere discussed in the reference nor are they particularly preferred. Presented with Nakasuji, the person of ordinary skill in the art would have to correctly select one of at least 672 possible combinations of substances just to arrive at the materials recited in Claim 46 – and there is nothing in the reference to show how they might beneficially relate to each other. Nakasuji discloses that one or another of his layers may just possibly be composed of ABS or SAN, but he does not disclose that all of them are, nor that they could be blends of the two, nor does he relate the chemical composition of any one of these layers to any other one. There is no coherent teaching in this reference of a multilayer structure in which there is less of a polybutadiene component in the core layer (which can be straight SAN or can have some polybutadiene in it, making it an ABS) than there is in the top ABS layer.

Another problem with using Nakasuji is that his vehicle floor mats are not coextruded, as all claims of Applicant now require. None of the layers selected by the Examiner are even bonded directly together and, since they are adhered rather than coextruded, there is no thought of coextrusion compatibility. The “fine fibers nonwoven layer” 23 selected by the Examiner to meet Applicant’s core layer is not believed to be capable of extrusion at all. Nakasuji nowhere suggests or discloses a core structural layer dominated by a polyolefin, making this reference inapplicable to

Claim 25 and its dependencies, nor does Nakasuji teach or suggest how a TPV-dominated top layer may be coextruded with it to enhance at least the upper surface's coefficient of friction. As stated above, Nakasuji makes a passing reference to ABS and SAN in long lists including other quite different polymers, but nowhere discusses the coextrusion of layers in which surface layer(s) have more polybutadiene in them than the core layer. It is clear that the claims as amended patentably define over Nakasuji either taken alone or used in any permissible combination with other references.

Claim 87 has been added to recite a limitation that the vehicle floor cover has a flexural modulus of less than or equal to about 36,000 psi. Support for this limitation can be found in the table following Paragraph 84 of the specification. Claim 87 is patentable for the reasons given for Claim 25 from which it depends, and also for the fact that, given the structure and composition which Emery prefers, and the function to which the Emery truck bed liner is put, the Emery truck bed liner would be much stiffer. Emery prefers that his truck bed liner be made with a core sheet of FORTIFLEX® G50-100 HDPE. A specification sheet for this material is attached as Exhibit 4, notably reciting a flexural modulus of 175,000 psi. Emery prefers that his surface layer(s) be formed of a blend of 40% of this HDPE and 60% FLEXOMER® DFDB-1085 NT, a very low density polyethylene. A specification sheet for this material is attached hereto as Exhibit 5, giving a flexural modulus of 4500 psi. Applicant has calculated that given the preferred structure of Emery, see Col 4, lines 47 – 51, and the composition of the layers he recites (assuming 90% HMW-HDPE for the core sheet and 40% HMW-HDPE for the top and bottom layers, with the balance being VLDPE), the flexural modulus of the combined product will still be well in excess of 100,000 psi – and significantly stiffer than Applicant's vehicle floor tray.

To do its job well, Applicant's vehicle floor cover has to be "floppy" enough to conform to or "lay down" into a vehicle foot well. On the other hand, a "floppy" product like that of Applicant would not be acceptable as a pickup truck bed liner. Nor would a "stiff" composition like Emery work well for a vehicle floor cover. Further, it would not have been obvious to a person skilled in the art to simply modify the composition of Emery to make Emery's product "floppier" – as doing so would create a product which would be commercially unacceptable for Emery's purposes.

From the foregoing it can be seen that the prior art does not disclose or suggest creating a vehicle floor tray by coextruding (1) a majority polyolefin / minority TPV core layer and (2) a majority TPV / minority polyolefin top layer, or (2) an SAN or ABS core layer and a polybutadiene-rich ABS top layer. Claims 25, 46 and their dependencies are therefore patentable over the prior art.

This Reply is being submitted with a two months' extension of time, to extend the period of response to 9 April 2007. The Commissioner is hereby authorized to charge any deficiency or credit any overpayment relating to this submission to Deposit Account No. 503982 of Momkus McCluskey Monroe Marsh & Spyratos, LLC.

Respectfully submitted,

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EXHIBIT 1

# Vyram 9000

General Product Bulletin

# Vyram®

THERMOPLASTIC RUBBER



**Advanced  
Elastomer  
Systems**

*The worldwide leader in engineered TPEs*

## Table of Contents

	Page
Introduction .....	2
Physical Properties .....	3
Resistance to Environmental Attack .....	3
Processing .....	4
Drying .....	4
Regrind .....	4
Use of Colorants .....	4
Injection Molding .....	4
Extrusion .....	5
Blow Molding .....	5

## Figure and Tables

	Page
Figure 1: Position Among TPEs and Performance.....	2
Table 1: Comparison of Properties .....	6
Table 2: General Purpose Grades .....	7
Table 3: Key Properties .....	8
Table 4: Mechanical Properties .....	9
Table 5: Aging in Air .....	10
Table 6: Comparison of Fluid Resistance and Compression Set .....	11
Table 7: Xenon Arc Weather-O-Meter Aging .....	12
Table 8: Typical Temperatures for Injection Molding .....	13
Table 9: Typical Temperatures for Extrusion .....	14
Table 10: Extrusion Blow Molding Parameters .....	15

## Introduction

Vyram® 9000 thermoplastic rubber enables the use of efficient thermoplastic processing in the fabrication of medium-performance rubber articles. Standard thermoplastic processing equipment and techniques are suitable for the injection molding, extrusion and blow molding of Vyram 9000 rubber. The ease, efficiency and economy of thermoplastics processing can give rise to a pronounced cost advantage over comparable thermoset rubber articles, and also provide design flexibility for new applications.

Vyram 9000 rubber is a thermoplastic vulcanizate (TPV) consisting of finely divided particles (ca. 1 µm diameter) of partially crosslinked rubber in a continuous matrix of thermoplastic. Thus it has the processability of a thermoplastic, but the properties and functional performance of a rubber.

The position of Vyram 9000 rubber in the spectrum of thermoplastic elastomers (TPEs) and its performance relative to conventional thermoset rubbers is given in Figure 1. A given TPE in the upper chart is a logical candidate to replace the thermoset rubber(s) in the same position in the lower chart. Table 1 gives a comparison of specific properties of Vyram 9000 rubber to those of thermoset and other thermoplastic rubbers. The performance of Vyram 9000 rubber is superior to that of the thermoplastic elastomeric olefins (TEOs, previously called thermoplastic polyolefins or TPOs), which have little or no crosslinking (vulcanization) of the rubber phase of a rubber/thermoplastic composition. On the other hand, its properties and performance are below that of Santoprene® thermoplastic rubber, a TPV with a fully crosslinked rubber phase. Advanced Elastomer Systems offers both Vyram 9000 rubber and Santoprene rubber as good candidates for replacing EPDM and neoprene (polychloroprene) thermoset rubbers (Figure 1, Table 1).

Vyram 9000 rubber is available as general purpose grades, either black (9100 series) or colorable (9200 series), with Shore hardness ranging from 55A to

54D. Table 2 lists the general purpose grades, with their respective hardness and color. The colorable grades may be given the desired color by adding a color concentrate with a polypropylene carrier.

Manufactured and supplied as free-flowing pellets, Vyram 9000 rubber is ready for use without further compounding. It is slightly hygroscopic, and drying is strongly recommended immediately before processing to minimize problems with moisture. Since it is thermoplastic, process scrap can be recycled to achieve significant cost savings.

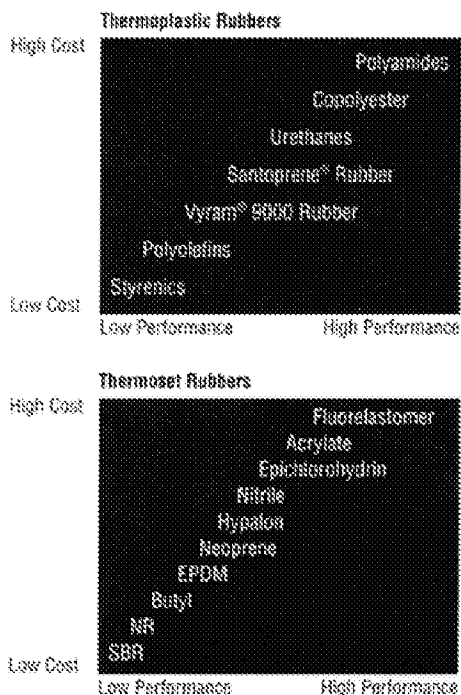


Figure 1: Position of Vyram 9000 rubber among the different classes of TPEs and its performance relative to thermoset rubbers.

## Physical Properties

Key physical properties (i.e., the ones routinely measured for quality control purposes) of the general purpose grades of Vyram 9000 rubber are listed in Table 3. The specific gravity of each hardness grade is either at or slightly below unity. This offers a 10 to 20 percent material cost advantage over black EPDM thermoset rubber compounds (specific gravity, 1.10 to 1.20) and a 40 to 45 percent cost advantage over thermoset neoprene compounds (specific gravity, 1.40 to 1.45), since the compounded rubber is purchased on a weight basis but used on a volume basis.

The tensile measurements were taken from specimens die cut from injection molded plaques, with the direction of pull being perpendicular to the flow direction of molten thermoplastic rubber into the mold. The tensile strength of Vyram 9000 rubber is significantly below that of most thermoset rubber compounds of comparable hardness.

This difference is generally of little or no practical significance since most rubber articles are used in compression, shear, torsion or some combination thereof, and only seldom in tension approaching the tensile limit.

The swell in IRM 903 oil (the replacement for the now obsolete ASTM #3 oil) is at least competitive with, and in most cases better than, that of thermoset EPDM rubber. This swell is less than that of a comparable hardness TEO, but more than that of a comparable hardness grade of Santoprene rubber.

Table 4 summarizes the mechanical properties of Vyram 9000 rubber. Because of its tear strength, Vyram 9000 rubber merits serious consideration in replacing thermoset EPDM and neoprene in many applications. The tension and compression set are reasonably good but inferior to that of Santoprene rubber. The low temperature brittle point is at or below  $-60^{\circ}\text{C}$  ( $-76^{\circ}\text{F}$ ) for all grades except those in the Shore D hardness range.

## Resistance to Environmental Attack

The resistance of Vyram 9000 rubber to aging in hot air is good, as attested by the  $125^{\circ}\text{C}$  ( $257^{\circ}\text{F}$ ) aging data in Table 5. These data show this TPV to adequately retain its physical properties after a 1008 hour aging and thus qualify for service at  $125^{\circ}\text{C}$  ( $257^{\circ}\text{F}$ ), as per the SAE (Society of Automotive Engineers) J 2236 procedure for determining the "Continuous Upper Temperature Limit." Thus, the Shore A grades of Vyram 9000 rubber have a useful temperature range in air of  $-60^{\circ}\text{C}$  to  $125^{\circ}\text{C}$  ( $-76$  to  $257^{\circ}\text{F}$ ).

In polar fluids, such as water and aqueous solutions, Vyram 9000 rubber retains its properties (with low volume swell) quite adequately and is quite comparable to Santoprene rubber (Table 6). In non-polar fluids, especially at elevated temperature, the clear superiority of the latter becomes quite apparent. Thus, in hot aromatic oil the weight gain of Vyram 9000 rubber is more than twice that of Santoprene rubber (Table 6).

This inferiority of Vyram 9000 rubber to Santoprene rubber in hot oil resistance is due to its lower level of crosslinking of the rubber phase. A direct comparison (Table 6) of the compression set of these two TPVs shows a similar difference.

Vyram 9000 rubber has good resistance to both ozone and sunlight, a result of the backbone of its polymer system being saturated. Table 7 documents the good retention of properties for a black Vyram 9000 rubber following exposure to a xenon arc weather-o-meter, which simulates the radiation spectrum of natural sunlight.



## Processing

Produced and supplied in pellet form, Vyram 9000 rubber is relatively easy to store and handle. It is packaged in sealed containers with a moisture barrier. Since the rubber can absorb significant amounts of ambient moisture, opened containers should be resealed and kept tightly closed as much as possible.

Vyram 9000 rubber is stable at temperatures up to 240°C (464°F). When processed under recommended conditions, it does not evolve significant gaseous by-products. During processing, ventilation should direct the flow of air away from attending personnel.

In processing Vyram 9000 rubber, good standard safety practices must be followed to avoid personal injury from contact with the hot material. Do not mix the rubber at elevated temperature with acetal resins, phenolic resins or halogen containing polymers. Processing equipment should be thoroughly purged with polypropylene or polyethylene prior to and following use with Vyram 9000 rubber.

## Drying

Due to its hygroscopicity, Vyram 9000 rubber should be dried in either a vacuum oven or dehumidified hopper dryer prior to processing. Preferred drying conditions are 75°C to 80°C (167°F to 176°F) for 3 hours or longer. Timing of the drying should begin only after the material is in the desired temperature range.

The dried rubber should be processed as soon as feasible, and high humidity should be avoided. Moisture problems are generally greater in hot, humid climates and during the summer months. Excess moisture can give voids and poor surface quality in fabricated articles and may reduce mechanical properties.

## Regrind

A major economic advantage of Vyram 9000 rubber over thermoset rubber is the opportunity to recycle processing scrap (regrind). Only clean regrind should be recycled, with predrying strongly recommended. The recycling of in-process scrap does not significantly affect the properties of Vyram 9000 rubber. Regrind should be blended with virgin material in a reasonably constant ratio and the blend dried for 4 hours or more at 75°C to 80°C (167°F to 176°F).

## Use of Colorants

The 9200 (colorable) series of Vyram 9000 rubber has a tan (beige) color. These materials can be given the desired color by adding a standard polypropylene-based color concentrate.

## Injection Molding

Vyram 9000 rubber is processed readily in standard thermoplastic injection molding equipment, to give dimensionally stable parts. Mold shrinkage is normally in the range of 1.5 to 2.5 percent, depending on several parameters (i.e., part shape, cross-sectional thickness, molding temperature, packing of melt in the mold, etc.). The viscosity of the molten Vyram 9000 rubber is quite sensitive to shear, with good flow at higher pressures.

All grades can be processed in a variety of sizes and makes of reciprocating screw injection molding machines with 40 to 70 MPa (3 to 5 tons/inch<sup>2</sup>) of clamping force on the projected shot area (parts plus runner system). Barrel capacity should be 2 to 6 times the shot volume. Typical injection molding conditions are given in Table 8.

The mold fill rate should be as fast as possible, with injection pressure and injection speed as high as non-flashing will permit. Injection should be followed

by a short holding period at reduced pressures, to enable the gate region to freeze. The bulk of the molding cycle is consumed in cooling the melt to where the part can be extracted and ejected without warping. Cooling cycles will generally range from 15 to 50 seconds, depending on the part size, shape and cross-sectional thickness. Screw recovery is typically carried out at 100 to 200 rpm with minimal back pressure.

The melt stability of Vyram 9000 rubber is excellent, permitting short interruptions without purging. The molten rubber should not remain in the barrel for more than 20 minutes.

Properly molded parts made of Vyram 9000 rubber release freely from the mold. Normally, a mold release is neither required nor recommended. Before and after processing, the molding equipment should be thoroughly cleaned, either mechanically or by purging with polypropylene or polyethylene. Detailed injection molding and tooling recommendations may be found in AES 31-02 "Injection Molding Guide for Thermoplastic Rubber," available from Advanced Elastomer Systems, L.P.

## Extrusion

Sheets, profiles, tubing, jacketing and insulation can be extruded from Vyram 9000 rubber. In many cases, tubing and profiles can be extruded and size controlled with no need for vacuum sizing.

A thermoplastic extruder is recommended, with a L/D (length/diameter) of 24:1 or greater and the capability of maintaining a melt temperature of up to 230°C (446°F). A conventional rubber extruder should not be used. Its L/D ratio is too low and its temperature range (i.e., heating capability) inadequate for delivering a stable, homogeneous melt to the die. Single-stage, general purpose screws with a compression ratio of 3:1 should be used, in conjunction with a 20 to 60 mesh screen pack. Screw cooling is not recommended.

Temperatures typically used are given in Table 9. Die swell should be in the 5 to 10 percent range, increasing with hardness, shear rate and lower temperature. Temperatures at the low end of the recommended range generally give the best extrudate. Screw rpm should be medium to high for filling out the die and giving the optimum surface finish.

Improperly dried Vyram 9000 rubber will likely give undesirable porosity in the extrudate. Following extended idle periods, material in the extruder barrel should be purged before resuming production. Before extrusion of Vyram 9000 rubber, the equipment should be thoroughly cleaned, either mechanically or through purging with polypropylene or polyethylene.

More detailed extrusion processing and tooling recommendations may be found in AES 34-01, "Extrusion Guide for Thermoplastic Rubber," available from Advanced Elastomer Systems, L.P.

## Blow Molding

Both extrusion and injection blow molding can be used to fabricate hollow articles from Vyram 9000 rubber with Shore hardness of 65A and greater. The material should be predried, otherwise, blow molding may not be possible.

Table 10 gives recommended extrusion blow molding conditions. Part dimensions and geometry will significantly influence mold design, wall thickness uniformity, parison dimensions and cycle time. Excessive melt overheating will reduce the blow ratio capability and should be avoided. Die swell is normally low (5 to 10 percent range).

The purging and cleaning recommendations for extrusion of Vyram 9000 rubber are also valid for its blow molding.

**Table 1:**

**Comparison of Properties of Vyram 9000 Thermoplastic Rubber Versus Thermoset and Other Thermoplastic Rubbers**

Property	Thermoplastic Rubber				Thermoset Rubber	
	Vyram 9000 Rubber	Santaprene Rubber	Styrenic	TEO (TPO)	EPDM	Polychloroprene
Specific gravity	0.94 to 1.00	0.94 to 0.99	0.94 to 1.00	0.90 to 1.00	1.00 to 1.20	1.30 to 1.50
Hardness, Shore	55A to 54D	35A to 50D	30A to 55D	60A to 60D	40A to 40D	40A to 60A
Temperature range, °C (°F)	-60 to 125 (-76 to 257)	-60 to 135 (-76 to 275)	-60 to 90 (-76 to 194)	-60 to 100 (-76 to 212)	-60 to 135 (-76 to 275)	-40 to 120 (-40 to 248)
Compression set	F / G	G / E	F / P	P	G / E	G / E
Oil resistance	F	G	P	P	F	G
Ozone resistance	E	E	F / G	E	E	F
Recyclable	Yes	Yes	Yes	Yes	No	No

*E = Excellent G = Good F = Fair P = Poor*

**Table 2:**

General Purpose Grades of Vyram 9000 Thermoplastic Rubber

Shore Hardness	Black	Colorable*
55A	9101-55	9201-55
65A	9101-65	9201-65
75A	9101-75	9201-75
85A	9101-85	9201-85
45D	9103-45	9203-45
54D	9103-54	9204-54

\*Natural color is beige.

**Table 3:**

Key Properties of Vyram 9000 Thermoplastic Rubber

Property	Test Method	Test Units	Test Temp. °C (°F)	Grade of Vyram 9000 Rubber					
				9101-55	9101-65	9101-75	9101-85	9103-45	9103-54
				9201-55	9201-65	9201-75	9201-85	9203-45	9203-54
Hardness	ASTM D 2240	Shore 5 s	25 (77)	55A	65A	75A	85A	45D	54D
	ISO 868	15 s		57	68	79	90	47	55
Specific gravity	ASTM D 792 ISO 1183	-	25 (77)	1.00	1.00	0.99	0.98	0.95	0.94
Tensile strength	ASTM D 412 <sup>a</sup> ISO 37 Type 1 <sup>b</sup>	MPa (psi)	25 (77)	4.9 (710)	5.0 (720)	7.0 (1010)	9.0 (1300)	16.8 (2440)	14.0 <sup>c</sup> (2030)
Ultimate elongation	ASTM D 412 <sup>a</sup> ISO 37 Type 1 <sup>b</sup>	%	25 (77)	430	490	600	630	750	800 <sup>c</sup>
Stress at 100% elongation	ASTM D 412 <sup>a</sup> ISO 37 Type 1 <sup>b</sup>	MPa (psi)	25 (77)	2.1 (310)	2.5 (360)	3.4 (500)	5.2 (760)	10.5 (1510)	13.8 <sup>c</sup> (2000)

<sup>a</sup>Die C test specimens; die cut (strong direction) from 3.2"x 4.5"x 0.12" injection molded plaques.

<sup>b</sup>Die Type 1; die cut (strong direction) from 5.9"x 3.9"x 0.79" injection molded plaques.

<sup>c</sup>Tensile values measured by ASTM D 638 / ISO 527-1. Grades 9103-54 and 9203-54 have a yield point at 14.0 MPa (2030 psi) stress and 23% elongation.

**Table 4:**

**Mechanical Properties of Vyram 9000 Thermoplastic Rubber**

Property	ASTM Test Method	Test Units SI (U.S.)	Grade of Vyram 9000 Rubber					
			9101-35	9101-65	9101-75	9101-85	9103-45	9103-54
			9201-35	9201-65	9201-75	9201-85	9203-45	9203-54
Tear strength	D 624	kJ/m (pl/in)	20 (115)	27 (156)	37 (213)	51 (290)	88 (504)	123 (703)
Tension set	D 412	%	10	15	20	31	50	75
Compression set, 22 hrs @ 25°C (77°F) 70°C (158°F)	D 395 method B (Type 1)	%	30	33	33	39	45	52
		%	40	45	48	52	64	75
Low temperature brittle point	D 746	°C (°F)	<-60 (<-76)	<-60 (<-76)	<-60 (<-76)	<-60 (<-76)	<-43 (<-45)	<-26 (<-15)
Flexural modulus	D 790	MPa (psi)	11 (1620)	19 (2700)	40 (5800)	98 (14200)	269 (39000)	395 (57300)

**Table 5:**

Aging of Vyram 9000 Thermoplastic Rubber in Air at 125°C (257°F) (ASTM D 573)

Property	ASTM Test Method	Vyram 9000 Rubber, Shore Hardness					
		65A	65A	75A	85A	45D	54D
Hardness change, Shore units							
7 days (168 hrs)	D 2240	+1	0	0	+1	+2	+4
42 days (1008 hrs)	5 s	+3	+2	+3	+6	+5	+6
Tensile strength, % change							
7 days (168 hrs)	D 412	1	14	11	2	4	18
42 days (1008 hrs)		48	26	12	4	3	15
Ultimate elongation, % change							
7 days (168 hrs)	D 412	17	11	0	-13	-9	-7
42 days (1008 hrs)		10	20	-9	-26	-15	-13
Stress at 100% elongation, % change							
7 days (168 hrs)	D 412	5	5	8	10	11	14
42 days (1008 hrs)		17	13	15	18	15	18

**Table 6:**

Comparison of Fluid Resistance and Compression Set of Vyram 9000 Thermoplastic Rubber and Santoprene Thermoplastic Rubber

Test	ASTM Test Method	Vyram 9000 Rubber 9101-85	Santoprene Rubber 101-87
Water, 168 hrs/100°C (212°F)			
Tensile strength, % change	D 412	-7	-7
Ultimate elongation, % change	D 412	-7	-7
Stress at 100% elongation, % change	D 412	-4	-10
10% Sulfuric Acid, 168 hrs/23°C (73°F)			
Tensile strength, % change	D 412	+4	+5
Ultimate elongation, % change	D 412	+3	+2
Stress at 100% elongation, % change	D 412	0	+1
Aromatic oil, 70 hrs/100°C (212°F)			
Tensile strength, % change	D 412	-34	-33
Ultimate elongation, % change	D 412	-66	-35
Stress at 100% elongation, % change	D 412	-21	-5
Weight gain, %		81	34
Compression set, 22 hrs/100°C (212°F), %	D 395, method B, Type 1 specimen	57	42



**Table 7:**

Xenon Arc Weather-O-Meter Ageing of Vyram 9000 Thermoplastic Rubber,  
780 kJ/m<sup>2</sup> (503 Hours)

Property	ASTM Test Method	Vyram 9000 Rubber 9103-45
Hardness, Shore D, points change	D 2240 5 s	+2
Tensile strength, % change	D 412	+4
Ultimate elongation, % change	D 412	-1
Stress at 100% elongation, % change	D 412	+6
Delta E, color change	Hunter Colorimeter	4.48

**Table 8:**

Typical Temperatures for Injection Molding of Vyram 9000 Thermoplastic Rubber

Zone	Vyram 9000 Rubber Shore Hardness					
	55A	55A	75A	85A	45D	54D
Rear (Feed) °C (°F)	185 (370)	195 (380)	195 (380)	195 (380)	195 (380)	195 (380)
Center °C (°F)	195 (380)	200 (390)	200 (390)	200 (390)	200 (390)	200 (390)
Front °C (°F)	195 (380)	195 (380)	195 (380)	195 (380)	200 (390)	200 (390)
Nozzle °C (°F)	205 (400)	205 (400)	210 (410)	210 (410)	210 (410)	210 (410)
Melt °C (°F)	195 to 210 (380 to 410)	195 to 210 (380 to 410)	187 to 210 (370 to 410)	187 to 210 (370 to 410)	215 to 230 (420 to 440)	215 to 230 (420 to 440)
Mold °C (°F)	10 to 80 (50 to 175)	10 to 80 (50 to 175)	10 to 80 (50 to 175)	10 to 80 (50 to 175)	10 to 80 (50 to 175)	10 to 80 (50 to 175)

**Table 9:**

Typical Temperatures for Extrusion of Vyram 9000 Thermoplastic Rubber

Zone	Vyram 9000 Rubber, Shore Hardness						
		55A	65A	75A	85A	45D	54D
Feed <sup>a</sup>	°C (°F)	175 (350)	175 (350)	180 (360)	190 (370)	195 (380)	195 (380)
Zone 1	°C (°F)	180 (360)	180 (360)	180 (360)	190 (370)	195 (380)	195 (380)
Zone 2	°C (°F)	180 (360)	190 (370)	190 (370)	195 (380)	200 (390)	200 (390)
Zone 3	°C (°F)	190 (370)	190 (370)	195 (380)	200 (390)	205 (400)	205 (400)
Head	°C (°F)	195 (380)	195 (380)	200 (390)	205 (400)	210 (410)	210 (410)
Die	°C (°F)	200 (390)	205 (400)	205 (400)	215 (420)	220 (430)	220 (430)
Melt	°C (°F)	195 (380)	200 (390)	200 (390)	210 (410)	215 (420)	215 (420)

<sup>a</sup>If throat cooling (highly recommended) is not available, reduce feed zone temperature to 160 to 165°C (320°F to 330°F)

**Table 10:**

**Extrusion Blow Molding Parameters for Vyram 9000 Thermoplastic Rubber**

Description	Vyram 9000 Rubber, Shore Hardness					
	Zones	65A	75A	85A	45D	54D
Feed °C (°F)		170 (346)	175 (350)	190 (376)	195 (383)	195 (380)
Transition °C (°F)		180 (366)	190 (370)	195 (388)	200 (390)	200 (390)
Metering °C (°F)		190 (378)	195 (380)	200 (390)	205 (400)	205 (400)
Upper Head °C (°F)		195 (380)	200 (390)	205 (400)	210 (410)	215 (420)
Lower Head °C (°F)		195 (380)	200 (390)	205 (400)	210 (410)	215 (420)
Die °C (°F)		200 (390)	200 (390)	205 (400)	215 (420)	215 (420)
Melt °C (°F)		200 (390)	200 (390)	205 (400)	205 (400)	215 (420)
Mold °C (°F)		5 to 40 (40 to 100)	5 to 40 (40 to 100)	5 to 40 (40 to 100)	5 to 40 (40 to 100)	5 to 40 (40 to 100)
Cycle Time (s)						
Parison drop		1 to 5	1 to 5	1 to 5	1 to 5	1 to 5
Cooling		10 to 60	10 to 60	10 to 60	10 to 60	10 to 60
Overall time		15 to 90	15 to 90	15 to 90	15 to 90	15 to 90
Blow Speed		slow	slow	medium	fast	fast
Blow Pressure, MPa (psi)		0.3 to 0.5 (40 to 90)	0.3 to 0.6 (40 to 90)	0.4 to 0.7 (60 to 100)	0.4 to 0.7 (60 to 100)	0.4 to 0.7 (60 to 100)
Screw Speed <sup>a</sup> , rpm		50 to 150	50 to 150	50 to 150	50 to 150	50 to 150
Blow Ratio <sup>b</sup> , maximum		2	2.5	3	4	5

<sup>a</sup>For continuous extrusion blow molding, screw speed will often be lower than 50 rpm. A polypropylene or polyethylene screw with a mixing section is recommended.

<sup>b</sup>Part outer diameter/parison outer diameter.

EXHIBIT 2



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**Geolast™ Thermoplastic Vulcanizate - High Oil Resistance**

For applications requiring enhanced oil resistance that meets or exceeds that of nitrile rubber and epichlorohydrin. Geolast TPV is an oil-resistant thermoplastic elastomer (TPE) that performs with the versatility of rubber and processes with the efficiency of thermoplastic.

For more information, click on the Geolast TPV Product Guide.

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§ \* requires registration



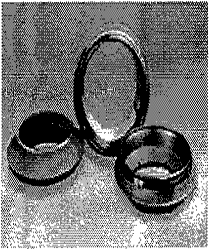
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Innovative elastomeric solutions from **ExxonMobil Chemical**

*Geolast Rubber - for applications requiring enhanced oil resistance that meets or exceeds that of nitrile rubber and epichlorohydrin.*

Geolast™ thermoplastic rubber is an oil-resistant thermoplastic elastomer (TPE) that performs with the versatility of rubber and processes with the efficiency of thermoplastic. With Geolast rubber, you benefit through cost savings and comparable performance to thermoset rubbers such as NBR, polychloroprene, ECO and even some urethanes.



### Performance competitive with NBR and ECO

Geolast rubber features good retention of properties in hot air and hot oil aging, and provides a good combination of the low-temperature (-40°C [-40°F]) performance and the degree of oil resistance commonly associated with NBR and ECO rubber compounds. Parts made of Geolast rubber exhibit

low oil swell, and the low compression set of Geolast rubber makes it suitable for use in sealing applications in automotive and industrial areas.

### Part design with freedom

Injection-molded parts made from Geolast rubber can have two to three times tighter tolerances than thermoset NBR or ECO. You can simplify multi-part designs while you eliminate metal inserts and specify either thick or delicate wall thickness for individual parts.

### Cost savings and efficiency

Standard thermoplastic processing of Geolast rubber saves time and production steps compared to thermoset rubber. It can be blow molded into various ID/OD shapes with good tolerance control and can also be insert or two-shot injection molded. For extrusions, Geolast rubber has low die swell. Reprocessed clean Geolast rubber scrap retains key physical properties even after multiple regrinds. The specific gravity of Geolast rubber is 15% to 30% lower than NBR or ECO, permitting you to create more parts per kilogram or pound and produce light-weight parts. Geolast rubber lets you design a better part and make it faster - with potential savings of 15% or more.

### Geolast Rubber Physical Properties

- Hardness range from 70 Shore A to 45 Shore D enables design of oil-resistant rubber parts for rugged, durable performance.
- Low specific gravity – 15% to 30% lower than NBR – means a lower weight of Geolast rubber for a specific part. Therefore, you can manufacture 15% to 30% more parts per kilogram or pound using Geolast rubber.
- Excellent oil resistance is demonstrated without sacrifice of brittle point.
- Rugged tear strength comparable to NBR shows tough resistance to physical abuse. Good hot-tear strength means faster demolding and shorter production cycles.
- Low tension set indicates durability and resistance to loss of shape.
- Low compression set helps parts made with Geolast rubber retain their structural integrity and original shape in sealing applications – even at temperatures up to 125°C (257°F).

### \*TYPICAL PHYSICAL PROPERTIES - Geolast Thermoplastic Rubber

Property	Test Method				Units	Grade of Geolast Rubber			
	ISO	ASTM	°C	°F		70A-80	70A-87	70A-95	70A-45
Hardness	868	D2240	23	73	Shore, 5 sec.	70A	80A	87A	45D
Specific Gravity	1183	D792	23	73	-	1.0	1.02	0.99	0.97
Tensile Strength	37	D412	23	73	MPa (psi)	5.9 (856)	8.2 (1,189)	11 (1,595)	16.2 (2,350)
Ultimate Elongation	37	D412	23	73	percent	260	300	330	365
Tensile Strength @100% Elongation	37	D412	23	73	MPa (psi)	3.3 (479)	4.7 (682)	6.4 (928)	11.3 (1,639)
Tear Strength	34	D624	23	73	pli	150	220	300	450
Compression Set, 22 hours	815	D395-B	100	212	percent	28	31	41	52
			125	257	percent	37	42	50	78
Tensile Set	2285	D412	23	73	percent	9	15	25	40
Brittle Point	n/a	D746	-	-	°C	-40	-40	-40	-40

\*The data were obtained with test specimens cut in the strong tensile direction from molded plaques with dimensions of 101x151x2mm (4x6x.08in).

Innovative elastomeric solutions from **ExxonMobil Chemical**

The figure below details the low weight change of Geolast rubber in a broad range of fluids.

### \*TYPICAL FLUID RESISTANCE - Geolast Thermoplastic Rubber

Fluid	Test Method - ISO 1817/ASTM D471			Percent Volume Change, Grade of Geolast Rubber			
	Hours	°C	°F	701-89		701-87	
				701-70	W163	W163	703-45
IRM #3 Oil	70	125	257	-2	0	+9	+7
Diesel Fuel #2	168	23	73	+1	+9	+7	+10
95% Ethanol	168	23	73	-5	+2	-6	+3
Brake Fluid (DOT 3)	168	23	73	+10	+11	+8	+2
50% Antifreeze / 50% Water	168	100	212	-1	-2	-1	-2
Water	168	100	212	+7	+5	+8	+5
50% Sodium Hydroxide	168	23	73	-1	-1	-5	+1
Transmission Fluid	168	23	73	-3	-1	0	+2
Fuel C	168	23	73	-12	-9	-10	-1
10% HCL	168	23	73	+1	+1	+1	0

\*The data were obtained with test specimens cut in the strong tensile direction from molded plaques with dimensions of 101x151x2mm (4x6x.08in).

**Advantages Over Competitors** - The advanced combination of properties in Geolast rubber perform well in relation to competitive compounds such as nitrile, polychloroprene, chlorosulfonated polyethylene, epichlorohydrin and polyurethane in many applications. A comparison of properties of Geolast rubber vs. other materials is shown below.

### COMPARISON OF PROPERTIES - Geolast Thermoplastic Rubber vs. Other Materials

	Thermoset Rubber Compounds					Thermoplastic Elastomers		
	Geolast Rubber	Nitrile	Polychloroprene	Chlorosulfonated Polyethylene	Epichlorohydrin	Santoprene™ Thermoplastic Rubber	Copolyester	Polyurethane
Specific Gravity	1.0	1.2	1.4	1.4	1.4	0.97	1.2	1.15
Durometer, Shore	70A-45D	40A-90D	50A-90A	40A-90A	40A-90A	45A-50D	40D-70D	60A-60D
Compression Set	G/E	G/E	G/E	G	G	G/E	F	F
Service Temperature Range, °C	-40 to 125*	-40 to 116	-46 to 121	-46 to 125	-40 to 135	-51 to 135	-68 to 135	-40 to 121
Service Temperature Range, °F	-40 to 257*	-40 to 240	-50 to 250	-50 to 257	-40 to 275	-60 to 275	-90 to 275	-40 to 250
Recyclability	yes	no	no	no	no	yes	yes	yes
Ozone Resistance	G	F	F	E	E	E	E	G/E

E = Excellent G = Good F = Fair P = Poor

\*See Chart: "Change in Geolast Thermoplastic Rubber Properties"

In conditions of dry heat, as shown below, Geolast rubber has demonstrated relatively small changes in important properties, such as hardness, tensile strength, elongation and modulus.

### \*CHANGE IN Geolast Thermoplastic Rubber Properties

Property	Test Method	Grade of Geolast Rubber			
		701-70	W163	W163	703-45
Hot Air Aging	For 168 Hours @125°C (257°F) ISO 188, ASTM D573				
Hardness, Points Change	ISO 868, ASTM 2240	+6	+3	+4	+3
Ultimate Tensile Strength, % Change	ISO 37, ASTM D412	+13	+2	+4	+4
Ultimate Elongation, % Change	ISO 37, ASTM D412	-18	-28	-25	-29
Tensile Strength @100% Elongation	ISO 37, ASTM D412	+18	+17	+16	+16
Weight Change, %	ISO 188, ASTM D573	-1	+1	0	+1

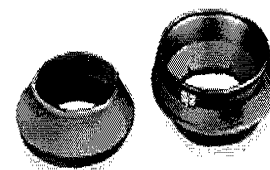
\*The data were obtained with test specimens cut in the strong tensile direction from molded plaques with dimensions of 101x151x2mm (4x6x.08in).

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# GEOLAST

Thermoplastic Rubber



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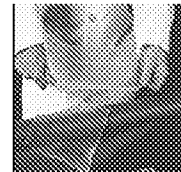
## Thermoplastic Elastomers TPE, TPR, TPV



We are grateful to Chem Polymer - ATeknor Apex Company - for their assistance in the preparation of this materials page. For more information [click here](#).

### INTRODUCTION

The formal definition of a thermoplastic rubber or elastomer (TPE) is "a polymer blend or compound which, above its melt temperature, exhibits a thermoplastic character that enables it to be shaped into a fabricated article and which, within it's design temperature range, possesses elastomeric behaviour without cross-linking during fabrication. This process is reversible and the products can be reprocessed and remoulded."



### PROPERTIES

Even though TPEs are thermoplastic, they exhibit elasticity similar to that of a cross-linked rubber. A key indicator is their softness or hardness value as measured on the Shore durometer scale. Like crosslinked rubber, TPEs are available as very soft gel materials from 20 Shore OO up to 90 Shore A, at which point they enter the Shore D scale and can be formulated to give hardness values up to 85 Shore D, which designates a material that is very hard.

Designers increasingly use TPEs due to the significant cost savings possible because their ability to be processed on plastics machinery. Conventional rubber, whether natural or synthetic, is a thermosetting material that must undergo a chemical cross-linking reaction during moulding or extrusion, typically called curing or vulcanization. Due to this reaction it is not generally processable in standard thermoplastic equipment. The time that it takes for the vulcanization reaction to complete is influenced by many factors, however it is typical that this is somewhere between 1 minutes and several hours. The thermoplastic moulding and extrusion processes used for TPEs, on the other hand, avoid the cross-linking step and can achieve very fast cycles times, which can be as little as 20 seconds. Environmental and cost pressures require more and more materials to be recyclable, TPE processing scrap, reject parts or end of life products can be easily reprocessed, whereas most thermosetting elastomers end up as land fill.

Additional advantages over thermoset rubber provided by TPEs include excellent colourability and a lower density.



Teknor Apex manufactures one of the world's most diversified ranges of TPE compounds. These are supplied under six trade names that represent different technologies, including di- and tri-block hydrogenated styrene block copolymers (Tekron, Elexar, and Monprene), thermoplastic polyolefin blends (Telcar), thermoplastic vulcanizates (Uniprene), and over-molding compositions designed to bond to diverse polar substrates (Tekbond).

Here is why Teknor Apex TPEs are among the fastest-growing plastics materials:

- TPEs are a unique class of engineering materials combining the look, feel and elasticity of conventional thermoset rubber with the processing efficiency of plastics.
- The melt-processability of TPEs makes them very suitable for high-volume injection moulding and extrusion. They can also be reclaimed and recycled.

- As elastomers, TPEs exhibit high elasticity. Our range of grades encompasses rubberlike properties and offer a wide range of durometers, low compression set, and high elongation.

### Main Characteristics

Excellent flexural fatigue resistance
Resistance to Low & High Temperatures from -30degC to +140degC
High impact strength
Low specific gravity
Excellent resistance to chemicals & weathering
Good electrical properties
Good tear & abrasion resistance
Colourability
Recyclable
Possess low Compression Set
Co-injection & co-extrusion with Polyolefins & certain Engineering Plastics

### GRADES AVAILABLE IN THE TPE INDUSTRY

There are seven main TPE groups available commercially and these are listed in approximate ascending price order:

1) **Styrenic Block Copolymers (TPE-S)** SBS is based on two-phase block copolymers with hard and soft segments. The styrene end blocks provide the thermoplastic properties and the Butadiene mid-blocks provide the elastomeric properties. SBS is probably the highest volume TPE-S material produced and is commonly used in footwear, adhesives, bitumen modification and lower-specification seals and grips, where resistance to chemicals and aging a lower priority. SBS when hydrogenated becomes SEBS, as the elimination of the C=C bonds in the butadiene component generated ethylene and butylenes mid-block, hence the SEBS acronym. SEBS is characterised by much improved heat resistance, mechanical properties and chemical resistance. Monprene® Tekron® and Elexar® products from Teknor Apex are good examples of hydrogenated styrenic block copolymers.

2) **Thermoplastic Polyolefins (TPE-O or TPO)** These materials are blends of polypropylene (PP) and un-crosslinked EPDM rubber, in some cases a low degree of cross-linking is present to boost heat resistanc and compression set proprties. They are used in applications where there is a requirement for increased toughness over the conventional PP copolymers, such as in automotive bumpers and dashboards. The properties are restricted to the high end of the hardness scale, typically >80 Shore A and with limited elastomeric properties.

Historically these products were mechanical blends of the 2 polymers, Telcar® from Teknor Apex is one example of this type of TPE-O. However with new catalyst technology it is now possible to blend the EPDM and PP in the reactor, therefore these types of TPEs are now available from major polymer manufacturers. These products are suited to high volume low cost applications, however there is still a market for custom mechanical blended TPE-O

3) **Thermoplastic vulcanisates (TPE-V or TPV)** These materials are the next step up in performance from TPE-O. These too are compounds of PP and EPDM rubber, however they have been dynamically vulcanised during the compounding step. They have seen strong growth in EPDM-replacement for automotive seals, pipe seals, and other applications where a heat resistance of up to 120degC is required. Shore hardness values range typically from 45A to 45D. The Uniprene® series from Teknor Apex is a very good example of TPE-V materials and are available from 15 Shore A to 50 Shore D. Uniprene XL increases the upper temperature limit

towards 140 C with big improvements in long terms compression set resistance versus standard TPE-V materials.

There are a number of new TPE-Vs being introduced, termed "Super TPVs" which are based on engineering plastics blended with high performance elastomers, which can offer greatly improved heat and chemical resistance.

4) **Thermoplastic polyurethanes (TPE-U or TPU)** These materials can be based on polyester or polyether urethane types and are used in applications where a product requires excellent tear strength, abrasion resistance, and flex fatigue resistance. Examples include shoe soles, industrial belting, ski boots, and wire and cable. Hardness is restricted to the high end of the Shore A scale, typically >80 Shore A.

5) **Thermoplastic copolyesters (TPE-E or COPE or TEEE)** are used where increased chemical resistance and heat resistance up to 140degC are needed. They also exhibit good fatigue resistance and tear strength and so are used in automotive applications such as blow moulded boots and bellows, wire and cable, and industrial hose applications. Again hardness is restricted to the high end and is typically between 85A to 75D.

6) **Melt processable rubber (MPR)** is designed for more demanding applications requiring chemical resistance, particularly resistance to oil and grease, where MPR replaces crosslinked nitrile rubber. It also possesses properties similar to those of vulcanised rubber in noise-dampening applications and has similar stress relaxation properties. Applications of MPR include automotive components, such as weather strips, and hand grips, where a good bonding to PVC, polycarbonate, or ABS is required. Compression set values are still much higher than for thermosetting elastomers so the penetration into the higher performance sealing market has been limited.

7) **Thermoplastic polyether block amides (TPE-A)** These products offer the good heat resistance, have good chemical resistance and bonding to polyamide engineering plastics. Their applications include cable jacketing and aerospace components.

### Polymer Types:

TPE-S	Styrenic block copolymer
TPE-O	Thermoplastic Olefinic elastomer
TPE-V	Thermoplastic Vulcanisate
TPE-U	Thermoplastic Polyurethane elastomer
MPR	Melt Processable Rubber
TPE-E	Thermoplastic Polyester Elastomer
TPE-A	Thermoplastic Amide Elastomer

Due to the wide range of TPEs on the market and the ever expanding range of applications it is critical that the designers and specifiers of products using TPEs remain abreast of the most recent innovations from industry suppliers. The following is only a snapshot of what can be achieved with TPE materials and we strongly urge readers to contact Chem Polymer/Teknor Apex to discuss their application in detail and obtain the most up-to date advice.

### PHYSICAL PROPERTIES

Tensile Strength	0.5 - 2.4	N/mm <sup>2</sup>
Notched Impact Strength	no break	KJ/m <sup>2</sup>
Thermal Coefficient of expansion	130	x 10 <sup>-6</sup>
Max Cont Use Temp	up to 140	°C

Density	0.91 - 1.3	g/cm <sup>3</sup>
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### RESISTANCE TO CHEMICALS

Dilute Acid	****
Dilute Alkalis	****
Oils and Greases	****
Aliphatic Hydrocarbons	****
Aromatic Hydrocarbons	**
Halogenated Hydrocarbons	**
Alcohols	****

#### KEY

*	poor	**	moderate	***	good	****	very good
---	------	----	----------	-----	------	------	-----------

Typical applications from the range of materials are shown below:

#### CURRENT CASE STUDIES

##### Wire and Cables

Elexar® TPE-S compounds are a quality family of elastomer compounds specifically targeting wire & cable, fibre optic, and electrical applications. Their unique blend of processability, functionality, customization and properties makes them the first choice of both design engineers and processors.



##### Power and Hand Tools

Monprene® and Tekbond® elastomers are an elite brand of TPEs offering some distinct advantages. Their unique blend of bondability to a wide range of substrates, processability, functionality, and properties make them the first choice of many design engineers and processors.



##### Pen Grips

Monprene® and Tekbond® TPEs are a series of proprietary elastomer compounds that enable over-molding to engineering thermoplastics, add tactile and visual enhancement and provide a functional performance such as resistance to skin oils. Therefore these materials offer the ability to enhance the quality of any writing product.



##### Airbag Covers

Tekron® features the feel and flexibility of rubber while offering the benefits of easy handling for the end user. This series of compounds from Teknor Apex has a wide range of approvals for Air Bag Covers and is able to satisfy -35 C in-chamber deployment, whilst eliminating the painting process required by materials such as COPE.



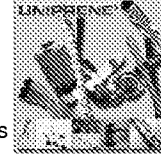
#### Grips and Handles

Telcar® Thermoplastic Rubbers offer a wide range of performance benefits such as a rubbery appearance and hot air aging up to 125 degrees C, excellent tear strength, ozone and weathering resistance, fluid resistance to acids, bases, and other aqueous based fluids.



#### Plugs, Seals and Grips

Uniprene® is a specially designed thermoplastic vulcanizate (TPV). It performs like cured EPDM with the feel of thermoset rubber...but processes with the ease and speed of a thermoplastic olefin (TPO). Uniprene® TPVs have mechanical and recovery properties comparable to most vulcanized elastomers and are superior in performance to most thermoplastic elastomers (TPEs). Uniprene XL pushes the boundaries of performance even further. Please see below for more detail.



#### History of Thermoplastic Elastomers/Rubbers (TPR/TPE)

The first thermoplastic elastomer became available in 1959 and since this time a plethora of new variations of such materials has become available. There are six main TPE groups found commercially; styrenic block copolymers (TPE-S), polyolefin blends (TPE-O), elastomeric alloys, thermoplastic polyurethanes (TPE-U), thermoplastic copolyesters (TPE-E) and thermoplastic polyamides (TPE-A).



We are grateful to Chem Polymer - ATeknor Apex Company - for their assistance in the preparation of this materials page. For more information [click here](#).

If you wish to discuss your application in confidence and obtain more specific advice, then please contact one of the following locations and ask to speak with someone in the Thermoplastic Elastomer Division, where one of our experts will be pleased to help. Teknor Apex has distribution partners in most world regions where you will be able to converse in your own language and obtain local support.

#### Europe:

Chem Polymer Ltd  
Tat Bank Road  
Oldbury  
West Midlands  
B69 4NH  
Tel: +44 (0) 121 665 2100  
Email: [tpe@chempolymer.co.uk](mailto:tpe@chempolymer.co.uk)

#### Asia:

Singapore Polymer Corporation

#### USA:

Teknor Apex Company  
505 Central Avenue  
Pawtucket  
Rhode Island

Tel: +401 775 8000



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EXHIBIT 5





Monday, April 09, 2007

**FLEXOMER™ DFDB-1085 NT**  
 Dow Plastics - Polyethylene, Very Low Density

Unit System: English

**Actions**

**Legend (Open)**



General Information

**Product Description**

- High elasticity with good elastic recovery
- Excellent impact strength in blends with polypropylene and polyethylene
- Soft touch blend

FLEXOMER™ DFDB-1085 NT Very Low Density Polyethylene (VLDPE) Resin is produced via gas phase polymerization from Dow. This is an ethylene-butene copolymer exhibiting high flexibility and elasticity. It can be utilized in monolayer and coextruded films and in blends with other polyolefins to enhance toughness of the structure.

**General**

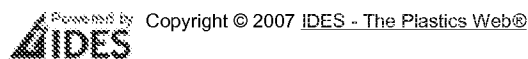
Material Status	● Commercial: Active
Availability	● Asia ● North America
Test Standards Available	● ASTM
Forms	● Pellets

ASTM and ISO Properties <sup>1</sup>

Physical	Nominal Value	Unit	Test Method
Density -Specific Gravity	0.886	sp gr 23/23°C	ASTM D792
Melt Mass-Flow Rate (MFR)			ASTM D1238
(190°C/2.16 kg)	0.8	g/10 min	
(190°C/21.6 kg)	26.0	g/10 min	
Mechanical	Nominal Value	Unit	Test Method
Tensile Strength @ Break	600	psi	ASTM D638
Tensile Elongation @ Brk	380	%	ASTM D638
Flexural Modulus (Procedure A)	2% Secant: 4500	psi	ASTM D790
Hardness	Nominal Value	Unit	Test Method
Durometer Hardness			ASTM D2240
(A Scale (1 sec))	79		
(A Scale (5 sec))	79		
Thermal	Nominal Value	Unit	Test Method
Glass Transition Temp	-62.0	°F	DSC
Melting Point	237	°F	DSC

Notes

<sup>1</sup> Typical properties: these are not to be construed as specifications.



The information presented on this data sheet was acquired by IDES from various sources, including the producer of the material and recognized testing agencies. In some cases, material updates have been integrated directly into the IDES Plastics Database by the material producer utilizing the Data Maintenance Tool. IDES makes substantial efforts to assure the accuracy of this data. However, IDES assumes no responsibility for the data values and urges that upon final material selection, data points are validated with the manufacturer.

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EXHIBIT 4

Monday, April 09, 2007

**INEOS HDPE G50-100**

INEOS Polyolefins - Polyethylene, High Density (HMW)

Unit System: English **Actions****Legend (Open)****General information****Product Description**

Fortiflex G50-100 is a high molecular weight, high density polyethylene copolymer developed for sheet extrusion, thermoforming and large part blow molding where the finished product demands outstanding physical performance. This material meets the Food and Drug Administration requirements of 21CFR 177.1520. This resin is Kosher certified.

**General**

Material Status	<ul style="list-style-type: none"> <li>Commercial: Active</li> </ul>
Availability	<ul style="list-style-type: none"> <li>North America</li> </ul>
Test Standards Available	<ul style="list-style-type: none"> <li>ASTM</li> </ul>
Features	<ul style="list-style-type: none"> <li>Copolymer</li> <li>Kosher Approved</li> <li>Molecular Wt., High</li> </ul>
Uses	<ul style="list-style-type: none"> <li>Blow Molding Applications</li> <li>Sheet</li> </ul>
Agency Ratings	<ul style="list-style-type: none"> <li>FDA 21 CFR 177.1520 <sup>1</sup></li> </ul>
Forms	<ul style="list-style-type: none"> <li>Pellets</li> </ul>
Processing Method	<ul style="list-style-type: none"> <li>Blow Molding</li> <li>Extrusion, Sheet</li> <li>Thermoforming</li> </ul>

**ASTM and ISO Properties <sup>2</sup>**

Physical	Nominal Value	Unit	Test Method
Density - Specific Gravity	0.952	sp gr 23/23°C	ASTM D792
Melt Mass-Flow Rate (MFR) (190°C/21.6 kg)	10.5	g/10 min	ASTM D1238
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus	Tangent: 180000	psi	ASTM D638
Tensile Strength @ Yield <sup>3</sup>	3800	psi	ASTM D638
Tensile Strength @ Break <sup>3</sup>	4390	psi	ASTM D638
Tensile Elongation @ Brk <sup>3</sup>	800	%	ASTM D638
Flexural Modulus	Tangent: 175000	psi	ASTM D790
Impact	Nominal Value	Unit	Test Method
Tensile Impact Strength <sup>4</sup>	250	ft-lb/in <sup>2</sup>	ASTM D1822
Hardness	Nominal Value	Unit	Test Method
Durometer Hardness (D Scale)	65		ASTM D2240
Thermal	Nominal Value	Unit	Test Method
DTUL @66psi - Unannealed	158	°F	ASTM D648
Brittle Temperature	-103	°F	ASTM D746
Vicat Softening Point	266	°F	ASTM D1525
CLTE, Flow	0.000067	in/in/°F	ASTM D696

**Additional Properties**

The value listed as Density - Specific Gravity, ASTM D792, was tested in accordance with ASTM D4883.

**Notes**

<sup>1</sup> When used unmodified for the manufacture of food contact articles, INEOS HDPE G50-100 will comply with Food Additive Regulations FDA 21 CFR 177.1520 under the U.S. Food, Drug and Cosmetic Act. Such uses are subject to good manufacturing practices and any other limitations which are part of the statute or regulations. These should be consulted for complete details.

<sup>2</sup> Typical properties: these are not to be construed as specifications.

<sup>3</sup> 2.0 in/min

<sup>4</sup> Type L



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The information presented on this data sheet was acquired by IDES from various sources, including the producer of the material and recognized testing agencies. In some cases, material updates have been integrated directly into the IDES Plastics Database by the material producer utilizing the Data Maintenance Tool. IDES makes substantial efforts to assure the accuracy of this data. However, IDES assumes no responsibility for the data values and urges that upon final material selection, data points are validated with the manufacturer.

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## Electronic Patent Application Fee Transmittal

<b>Application Number:</b>	10976441
<b>Filing Date:</b>	29-Oct-2004
<b>Title of Invention:</b>	Vehicle floor tray
First Named Inventor/Applicant Name:	David F. MacNeil
<b>Filer:</b>	Jefferson Perkins
<b>Attorney Docket Number:</b>	301700-00069

Filed as Small Entity

### Utility Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
<b>Basic Filing:</b>				
<b>Pages:</b>				
<b>Claims:</b>				
<b>Miscellaneous-Filing:</b>				
<b>Petition:</b>				
<b>Patent-Appeals-and-Interference:</b>				
Post-Allowance-and-Post-Issuance:				
<b>Extension-of-Time:</b>				
Extension - 2 months with \$0 paid	2252	1		

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
<b>Miscellaneous:</b>				
<b>Total in USD (\$)</b>				<b>225</b>

## Electronic Patent Application Fee Transmittal

<b>Application Number:</b>	10976441
<b>Filing Date:</b>	29-Oct-2004
<b>Title of Invention:</b>	Vehicle floor tray
First Named Inventor/Applicant Name:	David F. MacNeil
<b>Filer:</b>	Jefferson Perkins
<b>Attorney Docket Number:</b>	301700-00069

Filed as Small Entity

### Utility Filing Fees

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<b>Basic Filing:</b>				
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<b>Claims:</b>				
<b>Miscellaneous-Filing:</b>				
<b>Petition:</b>				
<b>Patent-Appeals-and-Interference:</b>				
Post-Allowance-and-Post-Issuance:				
<b>Extension-of-Time:</b>				
Extension - 2 months with \$0 paid	2252	1	225	225

MacNeil Exhibit 2002

Yita v. MacNeil IP, IPR2020-01138

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
<b>Miscellaneous:</b>				
<b>Total in USD (\$)</b>				<b>225</b>



## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	1667055
<b>Application Number:</b>	10976441
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	2133
<b>Title of Invention:</b>	Vehicle floor tray
<b>First Named Inventor/Applicant Name:</b>	David F. MacNeil
<b>Customer Number:</b>	64770
<b>Filer:</b>	Jefferson Perkins
<b>Filer Authorized By:</b>	
<b>Attorney Docket Number:</b>	301700-00069
<b>Receipt Date:</b>	09-APR-2007
<b>Filing Date:</b>	29-OCT-2004
<b>Time Stamp:</b>	20:02:46
<b>Application Type:</b>	Utility

### Payment information:

Submitted with Payment	yes
Payment was successfully received in RAM	\$225
RAM confirmation Number	1300
Deposit Account	503982

### File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part /.zip	Pages (if appl.)
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MacNeil Exhibit 2002

Yita v. MacNeil IP, IPR2020-01138

Page 189

1		31700000069ReplytoOAof7 Nov2006amendonly.pdf	236235	yes	31
	<b>Multipart Description/PDF files in .zip description</b>				
	<b>Document Description</b>		<b>Start</b>	<b>End</b>	
	Amendment - After Non-Final Rejection		1	11	
	Claims		12	18	
	Applicant Arguments/Remarks Made in an Amendment		19	31	
<b>Warnings:</b>					
<b>Information:</b>					
2	Applicant Arguments/Remarks Made in an Amendment	ROAEx1.pdf	2406537	no	17
<b>Warnings:</b>					
<b>Information:</b>					
3	Applicant Arguments/Remarks Made in an Amendment	ROAExh2.pdf	311724	no	4
<b>Warnings:</b>					
The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing					
<b>Information:</b>					
4	Applicant Arguments/Remarks Made in an Amendment	ROAExh3DefTPV.pdf	414002	no	7
<b>Warnings:</b>					
<b>Information:</b>					
5	Applicant Arguments/Remarks Made in an Amendment	ROAExh5.pdf	199327	no	2
<b>Warnings:</b>					
<b>Information:</b>					
6	Applicant Arguments/Remarks Made in an Amendment	ROAExh4.pdf	197060	no	3
<b>Warnings:</b>					
<b>Information:</b>					
7	Fee Worksheet (PTO-06)	fee-info.pdf	8112	no	2
<b>Warnings:</b>					

<b>Information:</b>	
<b>Total Files Size (in bytes):</b>	3772997
<p><b>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b>  <b>If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</b></p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b>  <b>If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</b></p> <p><b><u>New International Application Filed with the USPTO as a Receiving Office</u></b>  <b>If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.</b></p>	

**PATENT APPLICATION FEE DETERMINATION RECORD**  
Effective October 1, 2004

Application or Docket Number

10976441

**CLAIMS AS FILED - PART I**

(Column 1) (Column 2)

TOTAL CLAIMS	84		
FOR		NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	84	minus 20 =	64
INDEPENDENT CLAIMS	10	minus 3 =	7
MULTIPLE DEPENDENT CLAIM PRESENT <input type="checkbox"/>			

\* If the difference in column 1 is less than zero, enter "0" in column 2

**CLAIMS AS AMENDED - PART II**

(Column 1) (Column 2) (Column 3)

7/17/06

AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total	51	Minus	84	2
	Independent	5	Minus	10	2
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <input type="checkbox"/>					

SMALL ENTITY TYPE  OR OTHER THAN SMALL ENTITY

RATE	FEE
BASIC FEE	395.00
X\$ 9=	576
X44=	308
+150=	
TOTAL	1269

RATE	FEE
BASIC FEE	790.00
X\$18=	
X88=	
+300=	
TOTAL	

SMALL ENTITY OR OTHER THAN SMALL ENTITY

RATE	ADDITIONAL FEE
X\$ 9=	
X44=	
+150=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
X\$18=	
X88=	
+300=	
TOTAL ADDIT. FEE	

4/9/07

AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total	20	Minus	84	1
	Independent	2	Minus	10	1
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <input type="checkbox"/>					

RATE	ADDITIONAL FEE
X\$ 9=	
X44=	
+150=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
X\$18=	
X88=	
+300=	
TOTAL ADDIT. FEE	

AMENDMENT C		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
	Total		Minus		
	Independent		Minus		
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <input type="checkbox"/>					

RATE	ADDITIONAL FEE
X\$ 9=	
X44=	
+150=	
TOTAL ADDIT. FEE	

RATE	ADDITIONAL FEE
X\$18=	
X88=	
+300=	
TOTAL ADDIT. FEE	

\* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.  
 \*\* If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."  
 \*\*\* If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."  
 The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> ( Not for submission under 37 CFR 1.99)	Application Number		10976441	
	Filing Date		2004-10-29	
	First Named Inventor	David F. MACNEIL		
	Art Unit	3612		
	Examiner Name	Elizabeth A. ROBINSON		
	Attorney Docket Number	31700.000069		

U.S.PATENTS						
Examiner Initial*	Cite No	Patent Number	Kind Code <sup>1</sup>	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	4693507		1987-09-15	William L. DRESEN, et al.	

If you wish to add additional U.S. Patent citation information please click the Add button.

U.S.PATENT APPLICATION PUBLICATIONS						
Examiner Initial*	Cite No	Publication Number	Kind Code <sup>1</sup>	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Published Application citation information please click the Add button.

FOREIGN PATENT DOCUMENTS								
Examiner Initial*	Cite No	Foreign Document Number <sup>3</sup>	Country Code <sup>2</sup> j	Kind Code <sup>4</sup>	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T <sup>5</sup>
	1							<input type="checkbox"/>

If you wish to add additional Foreign Patent Document citation information please click the Add button

NON-PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>5</sup>

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> ( Not for submission under 37 CFR 1.99)	Application Number		10976441
	Filing Date		2004-10-29
	First Named Inventor	David F. MACNEIL	
	Art Unit		3612
	Examiner Name	Elizabeth A. ROBINSON	
	Attorney Docket Number		31700.000069

	1		<input type="checkbox"/>
--	---	--	--------------------------

If you wish to add additional non-patent literature document citation information please click the Add button

**EXAMINER SIGNATURE**

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> See Kind Codes of USPTO Patent Documents at [www.USPTO.GOV](http://www.USPTO.GOV) or MPEP 901.04. <sup>2</sup> Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>3</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>4</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>5</sup> Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**  
( Not for submission under 37 CFR 1.99)

Application Number	10976441
Filing Date	2004-10-29
First Named Inventor	David F. MACNEIL
Art Unit	3612
Examiner Name	Elizabeth A. ROBINSON
Attorney Docket Number	31700.000069

**CERTIFICATION STATEMENT**

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

**OR**

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

- See attached certification statement.
- Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.
- None

**SIGNATURE**

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Jefferson Perkins/	Date (YYYY-MM-DD)	2007-01-31
Name/Print	Jefferson Perkins	Registration Number	31407

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

## Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.



## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	1479000
<b>Application Number:</b>	10976441
<b>International Application Number:</b>	
<b>Confirmation Number:</b>	2133
<b>Title of Invention:</b>	Vehicle floor tray
<b>First Named Inventor/Applicant Name:</b>	David F. MacNeil
<b>Customer Number:</b>	64770
<b>Filer:</b>	Jefferson Perkins/Patricia Romanelli
<b>Filer Authorized By:</b>	Jefferson Perkins
<b>Attorney Docket Number:</b>	301700-00069
<b>Receipt Date:</b>	31-JAN-2007
<b>Filing Date:</b>	29-OCT-2004
<b>Time Stamp:</b>	11:15:45
<b>Application Type:</b>	Utility

### Payment information:

Submitted with Payment	no
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### File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Filed	IDS1.pdf	32646	no	4

### Warnings:

MacNeil Exhibit 2002

Yita v. MacNeil IP, IPR2020-01138

Page 197

**Information:**

This is not an USPTO supplied IDS fillable form

**Total Files Size (in bytes):**

32646

**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/976,441	10/29/2004	David F. MacNeil	301700-00069	2133

64770 7590 11/07/2006

MOMKUS MCCLUSKEY MONROE MARSH & SPYRATOS, LLC  
3051 OAK GROVE ROAD  
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DOWNERS GROVE, IL 60515-1181

EXAMINER

ROBINSON, ELIZABETH A

ART UNIT	PAPER NUMBER
1773	

1773

DATE MAILED: 11/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.



## DETAILED ACTION

### *Specification*

The disclosure is objected to because of the following informalities: The final line of paragraph 74 appears to have been included due to a clerical error. It should be removed.

Appropriate correction is required.

### *Claim Objections*

Claim 23 is objected to because of the following informalities: the word if is unnecessary and confusing. The section should read, ...cross sectional area of the cover....

Appropriate correction is required.

### *Election/Restrictions*

Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-46 and 74-76, drawn to a floor tray, classified in class 428, subclass 500.
- II. Claims 77 and 78, drawn to a vehicle and floor tray combination, classified in class 296, subclass 97.23.

The inventions are independent or distinct, each from the other because:

Inventions II and I are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does

Art Unit: 1773

not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the combination does not include the specific materials for construction. The subcombination has separate utility such as for a floor tray with a different structural arrangement.

The examiner has required restriction between combination and subcombination inventions. Where applicant elects a subcombination, and claims thereto are subsequently found allowable, any claim(s) depending from or otherwise requiring all the limitations of the allowable subcombination will be examined for patentability in accordance with 37 CFR 1.104. See MPEP § 821.04(a). Applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

During a telephone conversation with Jefferson Perkins on October 4, 2006, a provisional election was made without traverse to prosecute the invention of Group I, claims 1-46 and 74-76. Affirmation of this election must be made by applicant in

Art Unit: 1773

replying to this Office action. Claims 77 and 78 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 8, 10, 16, 30, 33, and 38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear in Claim 1 whether the Shore A durometer reading is for the neoprene rubber or for the top layer of the composition. In the specification (Paragraph 7), it is clear that it is a description for the neoprene rubber. This would be clearer if either it was listed as in the specification or the sentence ended ...with respect to neoprene rubber that has a Shore A durometer reading of 60.

Claims 8, 10, 16, 30, 33, and 38 contain the trademarks/trade names SANTOPRENE, GEOLAST, and VYRAM. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not

Art Unit: 1773

the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe the specific thermoplastic elastomer to be used and, accordingly, the identification/description is indefinite.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 25 through 30, 33 through 36, 38 through 41, 44, and 74 through 76 are rejected under 35 U.S.C. 102(b) as being anticipated by Emery (US 6,431,629). Emery (Column 4, Lines 12 through 38) teaches a three layer truck cargo bed liner which covers the floor of the truck bed. Since the bed liner is providing the same function as the vehicle floor cover, namely protecting the vehicle surface, providing an anti-slip surface, having a center layer for structural support, and being designed so as not to slip in the protected compartment, the examiner is interpreting the term vehicle floor cover to include the truck bed liner.

Claims 25 and 74: Emery teaches a truck bed floor cover with a thermoplastic polymer center layer, referred to as the liner base sheet. It also teaches a thermoplastic polymer top layer, referred to as the upper or interior layer, which is bonded to the center layer, has a different composition from the center layer, and is composed



Art Unit: 1773

primarily of a thermoplastic elastomer. Finally, it teaches a thermoplastic bottom layer referred to as the under layer, which is bonded to the center layer, has a different composition from the center layer, and is composed primarily of a thermoplastic elastomer.

Claims 26 through 28: Emery teaches a center layer wherein a major portion is made of a polyolefin selected from either HDPE or HMW-HDPE.

Claim 29: Emery (Column 5, line 9) teaches that a minor portion of the center layer can be VLDPE, a thermoplastic elastomer.

Claims 30, 33, and 38: Emery (Column 5, line 55) teaches that the thermoplastic elastomer can be more than 50 percent Santoprene®.

Claims 34 through 36: Emery (Column 4, line 66) teaches that the top layer is a polymer blend, a minor portion consisting of a polyolefin, namely HMW-HDPE.

Claims 39 through 41: Emery (Column 4, line 66) teaches that the bottom layer is a polymer blend, a minor portion consisting of a polyolefin, namely HMW-HDPE.

Claim 44: Emery teaches a truck bed liner that is a tray that covers the floor of the truck bed.

Claims 75 and 76: Emery (Column 4, line 66) teaches a floor cover where a portion of the top and bottom layers consists of a thermoplastic elastomeric material.

Claims 25, 46, and 74 through 76 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakasuji (US2004/0048036). Nakasuji teaches a multilayer floor mat for an automobile.

Art Unit: 1773

Claims 25 and 74 through 76: Nakasuji teaches a water-impervious (Paragraph 252, Table 1) floor mat with a thermoplastic polymer center layer (Paragraph 68) and a top layer (Paragraphs 178 and 179) which is bonded to the center layer, has a different composition from the center layer, and is composed primarily of a thermoplastic elastomer. Finally, it teaches (Paragraph 97) a thermoplastic bottom layer which is bonded to the center layer, has a different composition from the center layer, and is composed primarily of a thermoplastic elastomer.

Claim 46: Nakasuji teaches a multilayer floor mat with an upper layer that can be composed of ABS and SAN (Paragraphs 178 and 179), a middle layer that can be SAN (Paragraph 68), and a bottom layer that can be ABS (Paragraph 97).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 through 5, 8 through 13, 15 through 19, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Emery in view of ExxonMobile Santoprene® General Product Information Technical Correspondence (TCD00303). Emery teaches a three layer truck cargo bed liner which covers the floor of the truck bed. However, while Emery (Column 6, Line 21) states that the upper and lower surfaces have an effectively high coefficient of friction, there is no teaching of the exact kinetic coefficient of friction

Art Unit: 1773

for the material. Emery (Column 5, line 38) does state that the purpose of the high coefficient of friction is to inhibit movement of material placed on the upper surface. Nevertheless, ExxonMobile (Table IX, p 17) teaches that by choice of the appropriate elastomer, the coefficient of friction of the material can be chosen to be in the desired range. It would be obvious to one of ordinary skill in the art to add a chosen material from ExxonMobile to the truck bed liner of Emery to create a liner with the desired coefficient of friction on the upper surface.

Claim 1: Emery teaches a truck bed floor cover with a thermoplastic polymer center layer referred to as the liner base sheet, a thermoplastic top layer referred to as the upper or interior layer which is bonded to the top of the center layer and has a different composition from the center layer, and a thermoplastic bottom layer referred to as the under layer which is bonded to the bottom of the center layer and has a different composition from the center layer.

Claims 2 through 4: Emery teaches a center layer wherein a major portion is made of a polyolefin selected from either HDPE or HMW-HDPE.

Claim 5: Emery (Column 5, line 9) teaches that a minor portion of the center layer can be VLDPE, a thermoplastic elastomer.

Claims 8, 10 and, 16: Emery (Column 5, line 55) teaches that the thermoplastic elastomer can be Santoprene®, and that the percentage by weight of Santoprene®, in the upper and lower layers, can be greater than 50 percent.

Claim 9: Emery (Column 4, line 66) teaches a floor cover where a major portion of the top layer consists of a thermoplastic elastomer.

Art Unit: 1773

Claims 11 through 13: Emery (Column 4, line 66) teaches that the top layer is a polymer blend, a minor portion consisting of a polyolefin, namely HMW-HDPE.

Claim 15: Emery (Column 4, line 66) teaches a floor cover where a major portion of the bottom layer consists of a thermoplastic elastomer.

Claims 17 through 19: Emery (Column 4, line 66) teaches that the bottom layer is a polymer blend, a minor portion consisting of a polyolefin, namely HMW-HDPE.

Claim 22: Emery teaches a truck bed liner that is a tray that covers the floor of the truck bed.

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakasuji in view of ExxonMobile. Nakasuji teaches a multilayer floor mat with an upper layer that can have an ABS resin component (Paragraph 179), a middle layer that can be SAN (Paragraph 68), and a bottom layer that can be ABS (Paragraph 97). However, it does not teach the kinetic coefficient of friction for the upper surface of the floor cover. It is also noted that the specification for this invention did not formally test or discuss the kinetic coefficient of friction for this embodiment. Nevertheless, ExxonMobile teaches materials that can be added to a layer to meet the desired coefficient of friction, if it is not already at that level based on the intrinsic material properties of ABS. It would be obvious to one of ordinary skill in the art to adjust the materials of the top layer of the mat to meet the desired coefficient of friction.

Claims 31, 32, 37, 42, and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Emery in view of Fronek (US 5,848,769). Emery teaches that the layers of the composition can be a blend, where each layer has minor portion of the

Art Unit: 1773

materials of the adjacent layer. However, it was not stated that this was done for coextrusion compatibility and the weight ratios of the blend were different than in these claims. Nevertheless, Fronck (Column 1, line 66) teaches a multilayer coextrusion where the adjacent layers are polymer blends. These layers each contain the same two polymers in different weight ratios to provide good adhesion of the layers. One of the layers contains at least 70 percent by weight fluoropolymer and no more than 30 percent by weight acrylic polymer. The adjacent layer contains at least 70 percent by weight acrylic polymer and no more than 30 percent by weight fluoropolymer. While the polymers selected are different than in these claims, the method of blending polymers in the layer for coextrusion compatibility is known in the art. The weight ratios of Fronck encompass the weight ratios of these claims. It would be obvious to one of ordinary skill in the art to combine the known method of making polymer layers more compatible for coextrusion with the composition of Emery that already includes the polymers of these claims.

Claims 6, 7, 14, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Emery in view of ExxonMobile as applied to claims 1, 2, 5, 9, 15, and 17 above, and further in view of Fronck. As stated above, Fronck teaches polymer layers composed of blends that are selected for coextrusion compatibility. The weight ratios of Fronck encompass the weight ratios of these claims. It would be obvious to one of ordinary skill in the art to combine the known method of making polymer layers more compatible for coextrusion with the composition of Emery (with the chosen material from ExxonMobile) that already includes the polymers of these claims.

Art Unit: 1773

Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Emery in view of Dooley (Encyclopedia of Polymer Science and Technology, Coextrusion Article). Emery teaches a three-layer floor cover, but doesn't specify an increase in material properties for the cover, over the individual layers. Nevertheless, Dooley (Section 5.1) teaches that, for a coextruded film, favorable interactions of the layers can provide mutual interlayer reinforcement, and the composite acquires better mechanical properties than expected from summation of the components as a blend. It would be obvious to one of ordinary skill in the art to choose materials for the floor cover that would provide these known properties of composite articles.

Claim 23 rejected under 35 U.S.C. 103(a) as being unpatentable over Emery in view of ExxonMobile as applied to claim 1 above, and further in view of Dooley. The paragraph above covers all aspects of this claim, except for the kinetic coefficient of friction from claim 1. Nevertheless, ExxonMobile teaches that by choice of the appropriate elastomer, the coefficient of friction of the material can be chosen to be in the desired range.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elizabeth Robinson whose telephone number is 571-272-7129. The examiner can normally be reached on Monday- Friday 8 AM to 4:30 PM.

Art Unit: 1773

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ear

*EAD*

  
CAROL CHANEY  
SUPERVISORY PATENT EXAMINER

<b>Interview Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/976,441	MACNEIL, DAVID F.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Elizabeth Robinson	1773	

All participants (applicant, applicant's representative, PTO personnel):

- (1) Elizabeth Robinson. (3) \_\_\_\_\_.
- (2) Jefferson Perkins. (4) \_\_\_\_\_.

Date of Interview: 04 October 2006.

Type: a)  Telephonic b)  Video Conference  
c)  Personal [copy given to: 1)  applicant 2)  applicant's representative]

Exhibit shown or demonstration conducted: d)  Yes e)  No.  
If Yes, brief description: \_\_\_\_\_.

Claim(s) discussed: 1-46, and 74-78.

Identification of prior art discussed: none.

Agreement with respect to the claims f)  was reached. g)  was not reached. h)  N/A.

Substance of Interview including description of the general nature of what was agreed to if an agreement was reached, or any other comments: Restriction Group I, Claims 1-46, and 74-76 subcombination 428/500, Group II Claims 77 and 78 combination 296/97.23.

(A fuller description, if necessary, and a copy of the amendments which the examiner agreed would render the claims allowable, if available, must be attached. Also, where no copy of the amendments that would render the claims allowable is available, a summary thereof must be attached.)

THE FORMAL WRITTEN REPLY TO THE LAST OFFICE ACTION MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a reply to the last Office action has already been filed, APPLICANT IS GIVEN A NON-EXTENDABLE PERIOD OF THE LONGER OF ONE MONTH OR THIRTY DAYS FROM THIS INTERVIEW DATE, OR THE MAILING DATE OF THIS INTERVIEW SUMMARY FORM, WHICHEVER IS LATER, TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW. See Summary of Record of Interview requirements on reverse side or on attached sheet.

Examiner Note: You must sign this form unless it is an Attachment to a signed Office action.

\_\_\_\_\_  
Examiner's signature, if required



## Summary of Record of Interview Requirements

### Manual of Patent Examining Procedure (MPEP), Section 713.04, Substance of Interview Must be Made of Record

A complete written statement as to the substance of any face-to-face, video conference, or telephone interview with regard to an application must be made of record in the application whether or not an agreement with the examiner was reached at the interview.

### Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews

#### Paragraph (b)

In every instance where reconsideration is requested in view of an interview with an examiner, a complete written statement of the reasons presented at the interview as warranting favorable action must be filed by the applicant. An interview does not remove the necessity for reply to Office action as specified in §§ 1.111, 1.135. (35 U.S.C. 132)

#### 37 CFR §1.2 Business to be transacted in writing.

All business with the Patent or Trademark Office should be transacted in writing. The personal attendance of applicants or their attorneys or agents at the Patent and Trademark Office is unnecessary. The action of the Patent and Trademark Office will be based exclusively on the written record in the Office. No attention will be paid to any alleged oral promise, stipulation, or understanding in relation to which there is disagreement or doubt.

The action of the Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews.

It is the responsibility of the applicant or the attorney or agent to make the substance of an interview of record in the application file, unless the examiner indicates he or she will do so. It is the examiner's responsibility to see that such a record is made and to correct material inaccuracies which bear directly on the question of patentability.

Examiners must complete an Interview Summary Form for each interview held where a matter of substance has been discussed during the interview by checking the appropriate boxes and filling in the blanks. Discussions regarding only procedural matters, directed solely to restriction requirements for which interview recordation is otherwise provided for in Section 812.01 of the Manual of Patent Examining Procedure, or pointing out typographical errors or unreadable script in Office actions or the like, are excluded from the interview recordation procedures below. Where the substance of an interview is completely recorded in an Examiners Amendment, no separate Interview Summary Record is required.

The Interview Summary Form shall be given an appropriate Paper No., placed in the right hand portion of the file, and listed on the "Contents" section of the file wrapper. In a personal interview, a duplicate of the Form is given to the applicant (or attorney or agent) at the conclusion of the interview. In the case of a telephone or video-conference interview, the copy is mailed to the applicant's correspondence address either with or prior to the next official communication. If additional correspondence from the examiner is not likely before an allowance or if other circumstances dictate, the Form should be mailed promptly after the interview rather than with the next official communication.

The Form provides for recordation of the following information:

- Application Number (Series Code and Serial Number)
- Name of applicant
- Name of examiner
- Date of interview
- Type of interview (telephonic, video-conference, or personal)
- Name of participant(s) (applicant, attorney or agent, examiner, other PTO personnel, etc.)
- An indication whether or not an exhibit was shown or a demonstration conducted
- An identification of the specific prior art discussed
- An indication whether an agreement was reached and if so, a description of the general nature of the agreement (may be by attachment of a copy of amendments or claims agreed as being allowable). Note: Agreement as to allowability is tentative and does not restrict further action by the examiner to the contrary.
- The signature of the examiner who conducted the interview (if Form is not an attachment to a signed Office action)

It is desirable that the examiner orally remind the applicant of his or her obligation to record the substance of the interview of each case. It should be noted, however, that the Interview Summary Form will not normally be considered a complete and proper recordation of the interview unless it includes, or is supplemented by the applicant or the examiner to include, all of the applicable items required below concerning the substance of the interview.

A complete and proper recordation of the substance of any interview should include at least the following applicable items:

- 1) A brief description of the nature of any exhibit shown or any demonstration conducted,
- 2) an identification of the claims discussed,
- 3) an identification of the specific prior art discussed,
- 4) an identification of the principal proposed amendments of a substantive nature discussed, unless these are already described on the Interview Summary Form completed by the Examiner,
- 5) a brief identification of the general thrust of the principal arguments presented to the examiner,  
(The identification of arguments need not be lengthy or elaborate. A verbatim or highly detailed description of the arguments is not required. The identification of the arguments is sufficient if the general nature or thrust of the principal arguments made to the examiner can be understood in the context of the application file. Of course, the applicant may desire to emphasize and fully describe those arguments which he or she feels were or might be persuasive to the examiner.)
- 6) a general indication of any other pertinent matters discussed, and
- 7) if appropriate, the general results or outcome of the interview unless already described in the Interview Summary Form completed by the examiner.

Examiners are expected to carefully review the applicant's record of the substance of an interview. If the record is not complete and accurate, the examiner will give the applicant an extendable one month time period to correct the record.

### Examiner to Check for Accuracy

If the claims are allowable for other reasons of record, the examiner should send a letter setting forth the examiner's version of the statement attributed to him or her. If the record is complete and accurate, the examiner should place the indication, "Interview Record OK" on the paper recording the substance of the interview along with the date and the examiner's initials.




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Substitute for form 1449/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (Use as many sheets as necessary)		<b>Complete if Known</b>	
		Application Number	10/976,441
		Filing Date	October 29, 2004
		First Named Inventor	David F. MACNEIL
		Art Unit	3612
		Examiner Name	Not yet assigned
Sheet 2	of 3	Attorney Docket Number	301700-00069

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.†	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
EAL		Husky Liner for 1999 Ford Super Duty, downloaded from <a href="http://www.huskyliners.com/superduty.html">http://www.huskyliners.com/superduty.html</a> on January 3, 2005	
eat		Autoform Trunk Liner, English web page, downloaded from <a href="http://www.autoform.se/eng/products_trunk_liners.htm">http://www.autoform.se/eng/products_trunk_liners.htm</a> on October 20, 2004	
EAL		"Installation Instructions For Your F-150/F-250 Ford Truck Front Floor Liners", Winfield Consumer Products, February 1, 2001, downloaded from <a href="http://www.huskyliners.com">http://www.huskyliners.com</a> on	
		(continued from last entry) January 3, 2005	
EAL		Husky Deep Tray Floor Liner, downloaded from <a href="http://www.truckstuffusa.com/cusfitdeeptr.html">http://www.truckstuffusa.com/cusfitdeeptr.html</a> on January 3, 2005	
eat		Web pages featuring products from 3D Carpet Liners, Weatherboots, Nifty Products, Inc. and Husky, downloaded from <a href="http://www.premiermotoring.net">http://www.premiermotoring.net</a> on August 11, 2004	
EAL		WeatherTech Floor Mat and Cargo Liner Product Sheets, MacNeil Automotive Products Limited, Downers Grove, IL, Nov. 1994, 4 pp.	
EAL		Faro Laser ScanArm, downloaded from <a href="http://www.faro.com/Products/ScanArm.asp">http://www.faro.com/Products/ScanArm.asp</a> on September 23, 2004	
EAL		Faro ScanArm Product Techsheet, downloaded from <a href="http://www.faro.com/Products/Product_Techsheet.asp?techsheet_id=106">http://www.faro.com/Products/Product_Techsheet.asp?techsheet_id=106</a> on October 11, 2004	
eat		"CMM Produces Bikes With Custom-Look", downloaded from <a href="http://manufacturingcenter.com/man/articles/0604/0604CMM.asp">http://manufacturingcenter.com/man/articles/0604/0604CMM.asp</a> on Oct 11, 2004	

Examiner Signature		Date Considered	10/5/06
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\*EXAMINER. Initial if reference considered, whether or not citation is in conformance with MPEP 808. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.  
 † Applicant's unique citation designation number (optional). 2 Applicant is to place a check mark here if English language Translation is attached.  
 This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to the (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(Use as many sheets as necessary)</i>		Application Number	10/976.441
		Filing Date	October 29, 2004
		First Named Inventor	David F. MACNEIL
		Art Unit	3612
		Examiner Name	not yet assigned
		Attorney Docket Number	301700-00069
Sheet 3	of 3		

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No.†	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
EAR		"Stereolithography (SLA) for Rapid Precision Prototypes", p. 1, downloaded from <a href="http://www.boedeker.com/sla.htm">http://www.boedeker.com/sla.htm</a> on Oct. 12, 2004	
GAR		"About Coordinate Measuring Machines (CMM)", downloaded from <a href="http://cmm.globalspec.com">http://cmm.globalspec.com</a> on Oct. 11, 2004	
EAR		"Bagagerumsmattor", downloaded from <a href="http://www.autoform.se/sv/produkter_bagagerumsmattor.htm">http://www.autoform.se/sv/produkter_bagagerumsmattor.htm</a> on Oct. 20, 2004	
EAR		STRICTLY Catalog for Explorer/Mountaineer/Expedition/Navigator, MacNeil Automotive Products Limited, Downers Grove, IL, 1999, pp. 1- 2 and 4 - 7	

Examiner Signature		Date Considered	10/5/06
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\*EXAMINER Initial if reference considered, whether or not citation is in conformance with MPEP 809 Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.  
 † Applicant's unique citation designation number (optional) 2 Applicant is to place a check mark here if English language Translation is attached  
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	Filing Date		2004-10-29	
	First Named Inventor	David F. MacNEIL		
	Art Unit	3612		
	Examiner Name	Elizabeth A. ROBINSON		
	Attorney Docket Number	31700.000069		

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<b>Notice of References Cited</b>	Application/Control No. 10/976,441	Applicant(s)/Patent Under Reexamination MACNEIL, DAVID F.	
	Examiner Elizabeth Robinson	Art Unit 1773	Page 1 of 1

**U.S. PATENT DOCUMENTS**

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A US-5,848,769 A	12-1998	Fronek et al.	244/200
*	B US-6,431,629 B1	08-2002	Emery, Phillip L.	296/39.2
*	C US-2004/0048036 A1	03-2004	Nakasuji et al.	428/095
	D US-			
	E US-			
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**NON-PATENT DOCUMENTS**

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U	<a href="http://www.santoprene.com/site/Resource_Library/Product_Technical_Document/378/TCD00303.pdf">http://www.santoprene.com/site/Resource_Library/Product_Technical_Document/378/TCD00303.pdf</a> , Santoprene 8000 Thermoplastic Vulcanizate Series General Product Information, Technical Correspondence TCD00303, ExxonMobile Corporation, 2003
V	<a href="http://www.mrw.interscience.wiley.com/emrw/0471440264/epst/article/pst064/current/html?hd=All,coextrusion">http://www.mrw.interscience.wiley.com/emrw/0471440264/epst/article/pst064/current/html?hd=All,coextrusion</a> , Encyclopedia of Polymer Science and Technology, Coextrusion Standard Article, Joseph Dooley and Harvey Tung, October 22,2001
W	
X	

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.





## EAST Search History

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	5	("4591532" "6027782" "6155629" "6953545" "6953545" "D377780").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2006/10/12 08:20
S2	49	US-5891546-\$.DID. OR US-6027782-\$.DID. OR US-4828898-\$.DID. OR US-5449256-\$.DID. OR US-5236241-\$.DID. OR US-4863212-\$.DID. OR US-4265447-\$.DID. OR US-4919467-\$.DID. OR US-5246151-\$.DID. OR US-5269447-\$.DID. OR US-5360362-\$.DID. OR US-5746636-\$.DID. OR US-5842899-\$.DID. OR US-6899224-\$.DID. OR US-6921129-\$.DID. OR US-6301739-\$.DID. OR US-4988003-\$.DID. OR US-5716190-\$.DID. OR US-6200212-\$.DID. OR US-5998770-\$.DID. OR US-4894275-\$.DID. OR US-4991900-\$.DID. OR US-5886305-\$.DID. OR US-6956465-\$.DID. OR US-4540888-\$.DID. OR US-4613048-\$.DID. OR US-4915275-\$.DID. OR US-5390976-\$.DID. OR US-5664932-\$.DID. OR US-6116266-\$.DID. OR US-6216995-\$.DID. OR US-6216995-\$.DID. OR US-4377610-\$.DID. OR US-4415618-\$.DID. OR US-4878264-\$.DID. OR US-4878878-\$.DID. OR US-4915376-\$.DID. OR US-4917932-\$.DID. OR US-5964639-\$.DID. OR US-6095058-\$.DID. OR US-4084655-\$.DID. OR US-4813751-\$.DID. OR US-4826030-\$.DID. OR US-4989846-\$.DID. OR US-5020638-\$.DID. OR US-5526900-\$.DID. OR US-5830560-\$.DID. OR US-5927785-\$.DID. OR US-6027781-\$.DID. OR US-6155629-\$.DID.	US-PGPUB; USPAT; USOCR	OR	OFF	2006/10/05 10:06
S3	5	"2004050360"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/05 11:46
S4	2506	SANTOPRENE, GEOLAST and VYRAM	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/10 12:07

## EAST Search History

S5	4349	428/500.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/05 11:54
S6	3	S4 and S5	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/05 12:50
S7	11022	floor near (mat or cover)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/05 12:51
S8	10	S4 and S7	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/05 13:20
S9	52228	carpet	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/05 13:21
S10	44	S9 and S4	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/05 13:21
S11	84378	ABS.u/c.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/11 13:45
S12	11022	floor near (mat or cover)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/05 16:27
S13	94	S11 and S12	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 14:46
S14	16956	(high near molecular near weight near polyethylene)or hmpe	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 08:36

## EAST Search History

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S17	4651656	multi-layer or multilayer or multi layer	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 08:43
S18	2506	SANTOPRENE, GEOLAST and VYRAM	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 08:43
S19	2510	l8and S18	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 08:44
S20	63	S19 and S14	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 10:52
S21	26	("3578375"   "4083595"   "4101704"   "4188058"   "4245863"   "4396219"   "4693507"   "4765671"   "4779390" "4801169"   "5094318"   "5165747"   "5185980"   "5360250"   "5370436"   "5372396"   "5470642"   "5472760"   "5505512"   "5540473"   "5551742"   "5597194"   "5636883"   "5648031"   "5688467"   "6237980").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2006/10/06 10:49
S22	3366	S15 and S17	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 10:53
S23	1394596	automobile or auto or car	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 10:53

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S24	596	S22 and S23	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 10:58
S25	271514	"428"/\$.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 11:00
S26	157	S25 and S24	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 11:25
S27	1993839	polymer	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 11:25
S28	53	S26 and S27	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 11:28
S29	507793	thermoplastic	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 13:21
S30	226829	S29 and S27	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 13:22
S31	269	S30 and S22	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 13:24
S32	230	S31 not S28	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/06 13:25
S33	1	"4016318".PN.	USPAT; USOCR	OR	OFF	2006/10/06 13:44
S34	30	("4016318").URPN.	USPAT	OR	OFF	2006/10/06 13:45

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S36	1	"4332767".PN.	USPAT; USOCR	OR	OFF	2006/10/06 13:49
S37	1	"5154961".PN.	USPAT; USOCR	OR	OFF	2006/10/06 13:49
S38	1	"5154961".PN.	USPAT; USOCR	OR	OFF	2006/10/06 13:56
S39	1	"5207963".PN.	USPAT; USOCR	OR	OFF	2006/10/06 13:56
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S46	2	"2623242".PN.	USPAT; USOCR	OR	OFF	2006/10/06 14:57
S47	2	"2915427".PN.	USPAT; USOCR	OR	OFF	2006/10/06 14:57
S48	2	"3555601".PN.	USPAT; USOCR	OR	OFF	2006/10/06 14:58
S49	1	"4828898".PN.	USPAT; USOCR	OR	OFF	2006/10/06 14:58

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S51	1	"6020044".PN.	USPAT; USOCR	OR	OFF	2006/10/06 15:01
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S54	388445	mat or tray	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/06 15:38
S55	10819	S53 and S54	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/06 15:38
S56	0	("6977113").URPN.	USPAT	OR	ON	2006/10/06 15:48
S57	13	("5439725").URPN.	USPAT	OR	ON	2006/10/06 16:16
S58	832	floor near tray	USPAT	OR	ON	2006/10/06 16:20
S59	60	S53 and S58	USPAT	OR	ON	2006/10/06 16:17
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S61	12	S60 and S58	USPAT	OR	ON	2006/10/06 16:20
S62	907	door near mat	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/10 08:14
S63	271570	"428"/\$.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/10 08:15
S64	99	S62 and S63	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/10 08:15
S65	21	("3651183"   "3954537"   "4020207"   "4053341"   "4147828"   "4259408"). PN. OR ("4377614").URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/10 11:43
S66	3509	shore near durometer	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/10 11:43

## EAST Search History

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S69	155	S68 and S63	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/10 12:56
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S71	151	S70 and S63	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/10 13:08
S72	2	("4693507").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/10 13:08
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S75	1	"6431629".pn.	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/10 15:52
S76	508338	thermoplastic	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/10 15:58



## EAST Search History

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S80	2	S78 and friction	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/10 16:40
S81	2514	santoprene	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/10 16:40
S82	7	S81 and S70	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/10 16:40
S83	84477	ABS.u/c.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/11 13:45
S84	11038	floor near (mat or cover)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/11 13:45
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S89	5772	S88 and S83	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/11 13:57
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S91	3809	S90 and S89	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/11 13:59
S92	1395892	automobile or auto or car	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/11 13:59
S93	836	S91 and S92	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/11 14:01
S94	203	S86 and S93	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/11 15:23
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S96	443339	(styrene adj acrylonitrile adj copolymer) or san	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 10:34

## EAST Search History

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S99	11040	floor near (mat or cover)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/12 08:25
S10 0	152	S96 and S99	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 08:30
S10 1	271682	"428"/\$.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/12 08:30
S10 2	16	S101 and S100	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 08:36
S10 3	27819	Acrylonitrile adj butadiene adj styrene	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 12:55
S10 4	3424	S101 and S103	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 08:37
S10 5	11	S99 and S104	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 09:17
S10 6	1	S103 and "20040048036"	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 09:17

## EAST Search History

S10 7	2385	(428/517,521).ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 12:28
S10 8	62540	shower	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 12:29
S10 9	29	S107 and S108	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 16:08
S11 0	17478	coextrude or coextrusion or coextruding	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 15:31
S11 1	3287	(coextrude or coextrusion or coextruding)same (composition or adjustment)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:39
S11 2	2863	S111 and polymer	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 15:35
S11 3	1332	S112 and S101	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 09:22
S11 4	1259	S113 and method	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 16:00
S11 5	318	S114 and compatibility	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/12 16:00
S11 6	17	S109 and (S103 or ABS.u/c.)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 12:52

## EAST Search History

S11 7	30578	styrene adj acrylonitrile	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 12:54
S11 8	4662228	multi-layer or multilayer or multi layer	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/13 12:54
S11 9	14276	S118 and S117	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 12:54
S12 0	27819	Acrylonitrile adj butadiene adj styrene	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 12:55
S12 1	3329	S120 and S119	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 12:56
S12 2	17478	coextrude or coextrusion or coextruding	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 12:56
S12 3	391	S122 and S121	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 12:57
S12 4	271682	"428"/\$.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/13 12:57
S12 5	204	S124 and S123	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/13 12:57

## EAST Search History

S12 6	42	("3041719"   "3489392"   "3554494"   "3944631"   "4151226"   "4181764"   "4208175"   "4249875"   "4453357"   "4514449"   "4517339"   "4610902"   "4731414"   "4746688"   "4831079"   "4860996"   "4964618"   "5077948"   "5100109"   "5329741"   "5404685"   "5416139"   "5418028"   "5486553"   "5706620"   "5743986"   "5847016"   "5858493"   "5883191"   "5899442"   "5953878"   "6039307"   "6054207"   "6133349"   "6265037"   "6295782"   "6344268"   "6434906"   "D409869"   "D462458").PN. OR ("6827995"). URPN.	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/13 14:31
S12 7	286143	gradient	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/13 14:32
S12 8	1216	S122 and S127	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/13 14:36
S12 9	387	S128 and S124	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/13 14:39
S13 0	204	S129 and (compatible or compatibility)	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/13 16:05
S13 1	7331	(264/16\$,17\$).ccls.	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/13 16:06
S13 2	6	S128 and S131	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/16 09:18
S13 3	101	S122 and S131	US-PGPUB; USPAT; USOCR	OR	ON	2006/10/13 16:17
S13 4	80715	(styrene adj acrylonitrile ) or san.u/c.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 10:38
S13 5	84545	ABS.u/c.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/16 10:39

## EAST Search History

S13 6	27819	Acrylonitrile adj butadiene adj styrene	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 10:39
S13 7	62551	shower	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 10:39
S13 8	1261	S137 and (S136 or S135 or S134)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 10:39
S13 9	4663093	multi-layer or multilayer or multi layer	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/16 10:40
S14 0	749	S139 AND S138	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 10:43
S14 1	271682	"428"/\$.ccls.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/16 10:43
S14 2	171	S141 AND S140	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 10:52
S14 3	148	S137 AND ((S135 or S136)and S134)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 10:54
S14 4	44	S143 and S141	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 12:05
S14 5	104	S143 not S144	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 13:05

## EAST Search History

S14 6	2	("20040048036").PN.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2006/10/16 13:06
S14 7	1	S146 and (S134 or S135 or S136)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 13:17
S14 8	4546	acrylonitrile-styrene	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 13:20
S14 9	2627	S139 and S148	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 13:21
S15 0	648	S149 and S141	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 13:22
S15 1	1507	S149 and (S135 or S136)	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 13:23
S15 2	15	S151 and S137	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 13:23
S15 3	792539	polyethylene	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:39
S15 4	17479	coextrude or coextrusion or coextruding	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:40
S15 5	11533	S154 and S153	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:40



## EAST Search History

S15 6	3198	S153 same S154	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:44
S15 7	389905	(layer or layering) same composition	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:44
S15 8	1285	S156 and S157	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:45
S15 9	75763	(mixture or mix) same S157	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:47
S16 0	282	S159 and S156	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/16 14:47
S16 1	65	(coextrusion or coextruding or coextrude or co adj extrusion or co adj extrude) same (compatible or similar) same material same (layers or layer or layered) near15 adjacent	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	ON	2006/10/17 08:06



APPLICATION NUMBER	PATENT NUMBER	GROUP ART UNIT	FILE WRAPPER LOCATION
10/976,441		1773	1773

## Correspondence Address / Fee Address Change

The following fields have been set to Customer Number 64770 on 09/25/2006

- Correspondence Address
- Maintenance Fee Address

**The address of record for Customer Number 64770 is:**  
MOMKUS MCCLUSKEY MONROE MARSH & SPYRATOS, LLC  
3051 OAK GROVE ROAD  
SUITE 220  
DOWNERS GROVE, IL 60515-1181

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> ( Not for submission under 37 CFR 1.99)	Application Number	10976441
	Filing Date	2004-10-29
	First Named Inventor	David F. MacNEIL
	Art Unit	3612
	Examiner Name	Elizabeth A. ROBINSON
	Attorney Docket Number	31700.000069

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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> ( Not for submission under 37 CFR 1.99)	Application Number		10976441
	Filing Date		2004-10-29
	First Named Inventor	David F. MacNEIL	
	Art Unit		3612
	Examiner Name	Elizabeth A. ROBINSON	
	Attorney Docket Number		31700.000069

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Examiner Signature	Date Considered
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> See Kind Codes of USPTO Patent Documents at [www.USPTO.GOV](http://www.USPTO.GOV) or MPEP 901.04. <sup>2</sup> Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>3</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>4</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>5</sup> Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**  
( Not for submission under 37 CFR 1.99)

Application Number	10976441
Filing Date	2004-10-29
First Named Inventor	David F. MacNEIL
Art Unit	3612
Examiner Name	Elizabeth A. ROBINSON
Attorney Docket Number	31700.000069

**CERTIFICATION STATEMENT**

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

**OR**

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

- See attached certification statement.
- Fee set forth in 37 CFR 1.17 (p) has been submitted herewith.
- None

**SIGNATURE**

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Jefferson Perkins/	Date (YYYY-MM-DD)	2006-09-26
Name/Print	Jefferson Perkins	Registration Number	31407

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	1220060
<b>Application Number:</b>	10976441
<b>Confirmation Number:</b>	2133
<b>Title of Invention:</b>	Vehicle floor tray
<b>First Named Inventor:</b>	David F. MacNeil
<b>Customer Number:</b>	64770
<b>Filer:</b>	Jefferson Perkins
<b>Filer Authorized By:</b>	
<b>Attorney Docket Number:</b>	301700-00069
<b>Receipt Date:</b>	26-SEP-2006
<b>Filing Date:</b>	29-OCT-2004
<b>Time Stamp:</b>	14:50:35
<b>Application Type:</b>	Utility
<b>International Application Number:</b>	

### Payment information:

Submitted with Payment	no
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### File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part	Pages
1	Information Disclosure Statement (IDS) Filed	31700000069thirdIDS.pdf	657943	no	4

<b>Warnings:</b>	
<b>Information:</b>	
<b>Total Files Size (in bytes):</b>	657943
<p><b>This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.</b></p> <p><b><u>New Applications Under 35 U.S.C. 111</u></b>  <b>If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.</b></p> <p><b><u>National Stage of an International Application under 35 U.S.C. 371</u></b>  <b>If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.</b></p>	



IN THE UNITED STATES PATENT & TRADEMARK OFFICE

In re the application of: David F. MACNEIL  
Application Number: 10/976,441  
Filed: 29 October 2004  
Art Unit: 3612  
Examiner: Joseph Pape  
Confirmation Number: 2133  
For: VEHICLE FLOOR TRAY

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**REPLY TO EXAMINER'S ACTION**

Dear Sir:

This communication is responsive to the Examiner's Action mailed June 16, 2006.

IN THE CLAIMS

Please amend the claims as shown in the following Claim Listing. In particular, Applicant cancels Claims 49 – 73 and 79 - 84.

**CLAIM LISTING**

1. (Original) A vehicle floor cover, comprising:  
a thermoplastic polymer central layer having a top surface and a bottom surface;  
a thermoplastic polymer top layer bonded to the top surface of the central layer  
and having a composition different from the central layer, a top surface of the top layer  
exhibiting a kinetic coefficient of friction of at least about 0.82 with respect to neoprene rubber  
having a Shore A durometer reading of 60; and  
a thermoplastic polymer bottom layer bonded to the bottom surface of the central  
layer and having a composition different from the central layer.
2. (Original) The cover of Claim 1, wherein a major portion of the central layer is  
composed of a polyolefin.
3. (Original) The cover of Claim 2, wherein said major portion of the central layer is  
selected from the group consisting of polyethylene and polypropylene.
4. (Original) The cover of Claim 3, wherein said major portion is high molecular  
weight polyethylene (HMPE).
5. (Original) The cover of Claim 2, wherein the central layer is composed of a  
polymer blend, a minor portion of the blend consisting of a thermoplastic elastomer.

6. (Original) The cover of Claim 2, wherein the central layer is composed of a polymer blend, a minor portion of the blend preselected for its coextrusion compatibility with the top and bottom layers.

7. (Original) The cover of Claim 5, wherein in the central layer, the weight ratio of the polyolefin to the thermoplastic elastomer is about 3:1.

8. (Original) The cover of Claim 5, wherein the thermoplastic elastomer is selected from the group consisting of SANTOPRENE®, GEOLAST® and VYRAM®

9. (Original) The cover of Claim 1, wherein a major portion of the top layer is composed of a thermoplastic elastomer.

10. (Original) The cover of Claim 9, wherein said thermoplastic elastomer is selected from the group consisting of SANTOPRENE®, GEOLAST® and VYRAM®.

11. (Original) The cover of Claim 9, wherein the top layer is composed of a polymer blend including a minor portion of a polyolefin.

12. (Original) The cover of Claim 11, wherein the polyolefin is selected from the group consisting of polypropylene and polyethylene.

13. (Original) The cover of Claim 12, wherein the polyolefin consists of high molecular weight polyethylene (HMPE).

14. (Original) The cover of Claim 9, wherein top layer is composed of a polymer blend which includes a minor portion of a polymer preselected for its coextrusion compatibility with the central layer.

15. (Original) The cover of Claim 1, wherein a major portion of the bottom layer is formed of a thermoplastic elastomer.

16. (Original) The cover of Claim 15, wherein the thermoplastic elastomer is selected from the group consisting of SANTOPRENE®, GEOLAST® and VYRAM®.

17. (Original) The cover of Claim 15, wherein the bottom layer is a polymer blend, a minor portion of the polymer blend consisting of a polyolefin.

18. (Original) The cover of Claim 17, wherein the polyolefin is selected from the group consisting of polypropylene and polyethylene.

19. (Original) The cover of Claim 18, wherein the polyolefin consists of high molecular weight polyethylene (HMPE).

20. (Original) The cover of Claim 17, wherein in the bottom layer, the weight ratio between the thermoplastic elastomer and the polyolefin is about 3:1.
21. (Original) The cover of Claim 17, wherein a minor portion of the polymer blend is preselected for its coextrusion compatibility with the central layer.
22. (Original) The cover of Claim 1, wherein the cover is either a vehicle floor mat or a vehicle floor tray.
23. (Original) The cover of Claim 1, wherein one or more of the shear strength per cross sectional area, tensile strength per cross sectional area and stiffness per cross sectional area of the cover is greater than that of any of the top, central and bottom layers taken alone.
24. (Original) The cover of Claim 1, wherein the central layer is selected from the group consisting of acrylonitrile butadiene styrene copolymer blend (ABS) and styrene acrylonitrile copolymer (SAN), and wherein the top and bottom layers comprise ABS having an amount by weight of polybutadiene which is greater than the amount by weight of polybutadiene in the central layer.
25. (Original) A vehicle floor cover, comprising:  
a thermoplastic polymer central layer having a top surface and a bottom surface;  
a thermoplastic polymer top layer having a composition different from the central layer and bonded to the top surface of the central layer, a major portion of the top layer being composed of a thermoplastic elastomer; and

a thermoplastic polymer bottom layer having a composition different from the central layer and bonded to the bottom surface of the central layer, a major portion of the bottom layer being composed of a thermoplastic elastomer.

26. (Original) The floor cover of Claim 25, wherein a major portion of the central layer is a polyolefin.

27. (Original) The floor cover of Claim 26, wherein the polyolefin is selected from the group consisting of polyethylene and polypropylene.

28. (Original) The floor cover of Claim 27, wherein the major portion of the central layer consists of high molecular weight polyethylene (HMPE).

29. (Original) The floor cover of Claim 25, wherein the central layer is a polymer blend, a minor portion of the blend consisting of a thermoplastic elastomer.

30. (Original) The floor cover of Claim 29, wherein the thermoplastic elastomer is selected from the group consisting of SANTOPRENE®, GEOLAST® and VYRAM®.

31. (Original) The floor cover of Claim 29, wherein in the central layer, the weight ratio of polyolefin to thermoplastic elastomer is about 3:1.

32. (Original) The floor cover of Claim 25, wherein the central layer is a polymer blend, a minor portion of the central layer preselected for its coextrusion compatibility with the top layer and the bottom layer.

33. (Original) The floor cover of Claim 25, wherein the major portion of the top layer is a thermoplastic elastomer selected from the group consisting of SANTOPRENE®, GEOLAST® and VYRAM®.

34. (Original) The floor cover of Claim 25, wherein the top layer is a polymer blend, a minor portion of the blend consisting of a polyolefin.

35. (Original) The floor cover of Claim 34, wherein the polyolefin is selected from the group consisting of polypropylene and polyethylene.

36. (Original) The floor cover of Claim 35, wherein the polyolefin is high molecular weight polyethylene (HMPE).

37. (Original) The floor cover of Claim 34, wherein in the top layer, the ratio by weight of the thermoplastic elastomer to the polyolefin is about 3:1.

38. (Original) The floor cover of Claim 25, wherein the major portion of the bottom layer is a thermoplastic elastomer selected from the group consisting of SANTOPRENE®, GEOLAST® and VYRAM®.

39. (Original) The floor cover of Claim 25, wherein the bottom layer is a polymer blend, a minor portion of the bottom layer consisting of a polyolefin.

40. (Original) The floor cover of Claim 39, wherein the polyolefin is selected from the group consisting of polypropylene and polyethylene.

41. (Original) The floor cover of Claim 40, wherein the polyolefin is high molecular weight polyethylene (HMPE).

42. (Original) The floor cover of Claim 39, wherein in the bottom layer, the weight ratio of the thermoplastic elastomer to the polyolefin is about 3:1.

43. (Original) The floor cover of Claim 38, wherein the bottom layer is a polymer blend, a minor portion of the bottom layer preselected for its coextrusion compatibility with the central layer.

44. (Original) The floor cover of Claim 25, wherein the floor cover is a vehicle floor mat or a vehicle floor tray.

45. (Original) The floor cover of Claim 25, wherein one or more of the shear strength per cross-sectional area, tensile strength per cross-sectional area and stiffness per cross-sectional area of the floor cover is greater than that of any of the layers from which the floor cover is composed.

46. (Original) The floor cover of Claim 25, wherein the central layer is comprised of a material selected from the group consisting of acrylonitrile butadiene styrene copolymer (ABS)



and styrene acrylonitrile copolymer (SAN), and wherein the top and bottom layers are comprised of a grade of ABS where the percentage by weight of polybutadiene is greater than the percentage by weight of the polybutadiene in the central layer.

47. (Canceled)

48. (Canceled)

49. (Canceled)

50. (Canceled)

51. (Canceled)

52. (Canceled)

53. (Canceled)

54. (Canceled)

55. (Canceled)

56. (Canceled)

57. (Canceled)

58. (Canceled)

59. (Canceled)

60. (Canceled)

61. (Canceled)

62. (Canceled)

63. (Canceled)

64. (Canceled)

65. (Canceled)

66. (Canceled)

67. (Canceled)

68. (Canceled)

69. (Canceled)

70. (Canceled)

71. (Canceled)

72. (Canceled)

73. (Canceled)

74. (Original) A water-impervious vehicle floor cover which is installable and removable by a consumer in a vehicle, comprising:

a central layer formed of a polymeric material and having a top surface and a bottom surface;

a top layer formed of a polymeric material and bonded to the top surface of the central layer; and

a bottom layer formed of a polymeric material and bonded to the bottom surface of the central layer, the top and bottom layers having compositions distinct from the composition of the central layer.

75. (Original) The vehicle floor cover of Claim 74, wherein at least a portion of the top layer consists of elastomeric material, at least a portion of the bottom layer consisting of an elastomeric material.

76. (Original) The vehicle floor cover of Claim 75, wherein the elastomeric material is selected from the group consisting of polybutadiene, EPDM, SBR, natural rubber, NBR and thermoplastic elastomers.

77. (Original) A system including a vehicle and a tray for removable installation by a consumer into a foot well of the vehicle, comprising:

a vehicle foot well surface including a floor, at least first and second upstanding walls extending from the floor; and

a tray for removable installation into the vehicle foot well, a floor of the tray approximately conforming to the floor of the foot well, an upstanding first wall of the tray integrally formed with and extending from the floor of the tray and having a first outer surface facing the first wall of the vehicle foot well, an upstanding second wall of the tray integrally formed with and extending from the floor of the tray and having a second outer surface facing the second wall of the vehicle foot well, at least ninety percent of that one-half of the area of the first and second outer surfaces which is adjacent the top margin being no more than one-eighth of an inch from the closest surface of the vehicle foot well.

78. (Original) A system including a vehicle and a tray for removable installation by a consumer into a foot well of the vehicle, comprising:

a vehicle foot well surface including a floor, at least first and second upstanding walls extending from the floor; and

a tray for removable installation into the vehicle foot well, a floor of the tray approximately conforming to the floor of the foot well, an upstanding first wall of the tray integrally formed with and extending from the floor of the tray and having a first outer surface facing the first wall of the vehicle foot well, an upstanding second wall of the tray integrally formed with and extending from the floor of the tray and having a second outer surface facing

the second wall of the vehicle foot well, at least fifty percent of the area of the first and second outer surfaces being no more than one-eighth of an inch from the closest surface of the vehicle foot well.

79. – 84. (Canceled)

**REMARKS**

The Examiner's Action of June 16, 2006 was in the nature of a Restriction/Election Requirement. In response, Applicant elects, for prosecution in this case, Group I, consisting of Claims 1 – 46 and 74 – 76.

To advance prosecution of this case, Applicant has canceled Claims 49 – 74 and 79 – 84. These claim groups will be placed in respective divisional applications. The Examiner did not place Claims 77 and 78 in any claim group, and therefore they have not been withdrawn from the instant Application. Applicant believes that Claims 77 and 78 belong in nonelected Group II, but awaits the Examiner's confirmation of this before canceling them.

No fee is thought to be due with the submission of this Reply, which is being submitted within the shortened statutory period set by the Examiner in his last Office Action. Nonetheless, the Commissioner is hereby authorized to charge any deficiency relating to this submission to Deposit Account No. 503138 of Daspin & Aument, LLP.

Respectfully submitted,

/Jefferson Perkins/  
Jefferson Perkins  
Registration No. 31,407

**CUSTOMER NO. 43138**

DASPIN & AUMENT, LLP  
210 W. 22<sup>nd</sup> Street, Suite 102  
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jperkins@daspinaument.com

## Electronic Acknowledgement Receipt

<b>EFS ID:</b>	1116204
<b>Application Number:</b>	10976441
<b>Confirmation Number:</b>	2133
<b>Title of Invention:</b>	Vehicle floor tray
<b>First Named Inventor:</b>	David F. MacNeil
<b>Customer Number:</b>	43138
<b>Filer:</b>	Jefferson Perkins
<b>Filer Authorized By:</b>	
<b>Attorney Docket Number:</b>	301700-00069
<b>Receipt Date:</b>	17-JUL-2006
<b>Filing Date:</b>	29-OCT-2004
<b>Time Stamp:</b>	18:23:54
<b>Application Type:</b>	Utility
<b>International Application Number:</b>	

### Payment information:

Submitted with Payment	no
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### File Listing:

Document Number	Document Description	File Name	File Size(Bytes)	Multi Part	Pages
1		30170000069replyrestrelect.pdf	133735	yes MacNeil Exhibit 2002	14

<b>Multipart Description</b>			
	<b>Doc Desc</b>	<b>Start</b>	<b>End</b>
	Response to Election / Restriction Filed	1	1
	Claims	2	13
	Applicant Arguments/Remarks Made in an Amendment	14	14

**Warnings:**

**Information:**

<b>Total Files Size (in bytes):</b>	133735
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**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**



**PATENT APPLICATION FEE DETERMINATION RECORD**  
Effective October 1, 2004

Application or Docket Number

10976441

**CLAIMS AS FILED - PART I**

	(Column 1)	(Column 2)
TOTAL CLAIMS	84	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	84 minus 20 =	64
INDEPENDENT CLAIMS	10 minus 3 =	7
MULTIPLE DEPENDENT CLAIM PRESENT <input type="checkbox"/>		

SMALL ENTITY TYPE  OR OTHER THAN SMALL ENTITY

RATE	FEE	OR	RATE	FEE
BASIC FEE	395.00	OR	BASIC FEE	790.00
X\$ 9=	576	OR	X\$18=	
X44=	308	OR	X88=	
+150=		OR	+300=	
TOTAL	1269	OR	TOTAL	

\* If the difference in column 1 is less than zero, enter "0" in column 2

**CLAIMS AS AMENDED - PART II**

7/17/06

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT A	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	* 51 Minus	** 84	= 0
Independent	* 5 Minus	*** 10	= 0
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <input type="checkbox"/>			

SMALL ENTITY OR OTHER THAN SMALL ENTITY

RATE	ADDITIONAL FEE	OR	RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X44=		OR	X88=	
+150=		OR	+300=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT B	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	* Minus	**	=
Independent	* Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <input type="checkbox"/>			

RATE	ADDITIONAL FEE	OR	RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X44=		OR	X88=	
+150=		OR	+300=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

	(Column 1)	(Column 2)	(Column 3)
AMENDMENT C	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA
Total	* Minus	**	=
Independent	* Minus	***	=
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <input type="checkbox"/>			

RATE	ADDITIONAL FEE	OR	RATE	ADDITIONAL FEE
X\$ 9=		OR	X\$18=	
X44=		OR	X88=	
+150=		OR	+300=	
TOTAL ADDIT. FEE		OR	TOTAL ADDIT. FEE	

\* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.  
 \*\* If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."  
 \*\*\* If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".  
 The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.



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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/976,441	10/29/2004	David F. MacNeil	301700-00069	2133
43138	7590	06/16/2006	EXAMINER PAPE, JOSEPH	
DASPIN & AUMENT, LLP 210 WEST 22ND STREET, SUITE 102 OAK BROOK, IL 60523			ART UNIT      PAPER NUMBER 3612	

DATE MAILED: 06/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.



## DETAILED ACTION

### *Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-46 and 74-76, drawn to an article, classified in class 428.
  - II. Claims 47-73, drawn to a vehicle and a floor tray combination, classified in class 296.
  - III. Claims 79-84, drawn to a method of manufacturing, classified in class 29.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions II and I are related as combination and subcombination. Inventions in this relationship are distinct if it can be shown that (1) the combination as claimed does not require the particulars of the subcombination as claimed for patentability, and (2) that the subcombination has utility by itself or in other combinations (MPEP § 806.05(c)). In the instant case, the combination as claimed does not require the particulars of the subcombination as claimed because the combination does not include the specific materials for construction. The subcombination has separate utility such as for a floor tray with a different structural arrangement.

3. Inventions III and I are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product can be made by a materially different process which does not include digitally measuring the vehicle foot well.

4. Inventions III and II are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product can be made by a materially different process which does not include digitally measuring the vehicle foot well.

5. Because these inventions are independent or distinct for the reasons given above and have acquired a separate status in the art in view of their different classification, restriction for examination purposes as indicated is proper.

6. Because these inventions are independent or distinct for the reasons given above and the inventions require a different field of search (see MPEP § 808.02), restriction for examination purposes as indicated is proper.

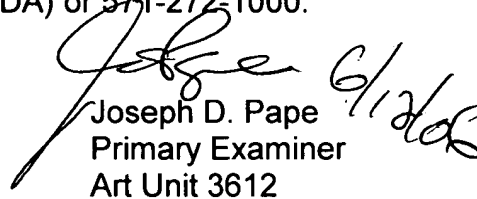
7. Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103(a) of the other invention.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph D. Pape whose telephone number is (571)272-6664. The examiner can normally be reached on Tuesday-Friday 6:30 AM-3:00 PM.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Joseph D. Pape  
Primary Examiner  
Art Unit 3612

Jdp

6/12/06



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Bib Data Sheet

CONFIRMATION NO. 2133

<b>SERIAL NUMBER</b> 10/976,441	<b>FILING OR 371(c) DATE</b> 10/29/2004 <b>RULE</b>	<b>CLASS</b> 296	<b>GROUP ART UNIT</b> 3612	<b>ATTORNEY DOCKET NO.</b> 301700-00069
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**APPLICANTS**  
 David F. MacNeil, Hinsdale, IL;  
**\*\* CONTINUING DATA \*\*\*\*\***  
**\*\* FOREIGN APPLICATIONS \*\*\*\*\***  
**IF REQUIRED, FOREIGN FILING LICENSE GRANTED\*\* SMALL ENTITY \*\***  
**\*\* 12/09/2004**

Foreign Priority claimed 35 USC 119 (a-d) conditions met Verified and Acknowledged	<input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> yes <input checked="" type="checkbox"/> no <input type="checkbox"/> Met after Allowance Examiner's Signature: <i>[Signature]</i> Initials:	<b>STATE OR COUNTRY</b> IL	<b>SHEETS DRAWING</b> 12	<b>TOTAL CLAIMS</b> 84	<b>INDEPENDENT CLAIMS</b> 10
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**ADDRESS**  
 43138

**TITLE**  
 Vehicle floor tray

<b>FILING FEE RECEIVED</b> 1279	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:	<input type="checkbox"/> All Fees <input type="checkbox"/> 1.16 Fees ( Filing ) <input type="checkbox"/> 1.17 Fees ( Processing Ext. of time ) <input type="checkbox"/> 1.18 Fees ( Issue ) <input type="checkbox"/> Other _____ <input type="checkbox"/> Credit
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Attorney Docket No. 301700-00069

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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MAR 03 2006

Applicant: David F. MACNEIL  
Serial No.: 10/976,441  
Filed: October 29, 2004  
Art Unit: 3612  
Examiner: Joseph PAPE  
Confirmation No.: 2133  
Title: VEHICLE FLOOR TRAY

I hereby certify that this correspondence is being transmitted via facsimile (571 273 8300) to Mail Stop Amendment, Commissioner for Patents, P O Box 1450, Alexandria, VA 22313-1450, on  
  
March 3 2006  
Date  
*Jefferson Perkins*  
Jefferson Perkins

CUSTOMER NUMBER: 43138

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**SECOND INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. §1.97(B)**

Dear Sir:

Pursuant to 37 C.F.R. §§ 1.56 and 1.97(b), Applicant brings to the attention of the Examiner the documents listed on the attached forms PTO/SB08A/B. This Information Disclosure Statement is being filed prior to the Applicant's receipt of the first action on the merits of the application, and further within three months of the date of establishment of a Search Report by the British Examiner of corresponding British Appln. No. GB0522091.8. Applicant encloses copies of those listed documents other than those which are US patents, US published patent applications, or which have been made of record in an application upon which Applicant relies for a priority date under 35 USC § 120. 37 CFR 1.97(d).

301700 00069 22877477.1

Attorney Docket No. 301700-00069

The listed documents consist of the Search Report itself, and the two references listed on it that are competent as prior art to the instant US Application. The European Patent Application Publication No. EP0968875 A (Textiles Plastiques Chomarat) was published in French and Applicant does not possess a complete translation of it. Applicant supplies herewith the Esp@cenet English abstract, and a copy of the English-language claims in the later-issued European patent (which itself has a date too late to be considered as prior art to this Application). The claims as issued do not match those which appear in the laid-open publication but nonetheless give some idea of the contents of the A1 publication.

It is believed that the Chomarat reference discloses a two-layer vehicle floor mat in which both layers are made from a polyolefin, more particularly a polyethylene. The base or support layer is constituted by a highly filled low density polyethylene (LDPE) while the surface layer is made of a combination of LDPE, high density polyethylene (HDPE), ethylene vinyl acetate (EVA) and fillers.

Applicant respectfully requests that the Examiner consider the listed documents, and evidence that consideration of relevant portions thereof by making appropriate notations on the attached form.

It is believed that these references either taken alone or in combination do not disclose or suggest the invention claimed by the Applicant. However, it is the Applicant's desire to have these references available in the record for both the Examiner and the public to see. The Applicant specifically reserves all rights of privilege and confidence with respect to this matter and submission of this document is not to be construed as a waiver of those rights. Moreover, submission of this document should not be considered an admission that the references cited herein are proper prior art to the aforementioned application.

Attorney Docket No. 301700-00069

This submission does not represent that a search has been made or that no better art exists and does not constitute an admission that each or all of the listed documents are material or constitute "prior art." If it should be determined that any of the listed documents do not constitute "prior art" under United States law, Applicant reserves the right to present to the Office the relevant facts and law regarding the appropriate status of such documents.

Applicant further reserves the right to take appropriate action to establish the patentability of the disclosed invention over the listed documents, should one or more of the documents be applied against the claims of the present application.

No fee is thought to be due with this Information Disclosure Statement. However, if there is any fee due in connection with this submission, please charge the fee to our Deposit Account No. 503138 of Daspin & Aument, LLP.

Respectfully submitted,



Jefferson Perkins  
Reg. No. 31,407

DASPIN & AUMENT, LLP  
210 West 22<sup>nd</sup> Street, Suite 102  
Oak Brook, Illinois 60523  
Telephone: (630) 990-4503













### Floor mat especially for automotives and process for its manufacture

**Patent number:** EP0968875  
**Publication date:** 2000-01-05  
**Inventor:** BACCUS GERARD (FR); SANIAL PHILIPPE (FR)  
**Applicant:** TEXTILES PLASTIQUES CHOMARAT (FR)  
**Classification:**  
 - International: **B60N3/04; B60N3/04; (IPC1-7). B60N3/04**  
 - European: **B60N3/04F**  
**Application number:** EP19990420106 19990427  
**Priority number(s):** FR19980008481 19980630

**Also published as:**

 FR2780356 (A1)  
 EP0968875 (B1)

**Cited documents:**

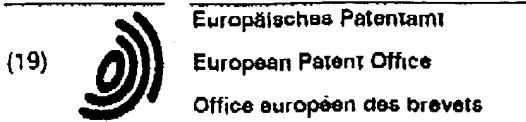
 GB2072578  
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 DE9212210U  
 EP0512904  
 FR2694248  
 DE29519596U  
 less <<

Report a data error here

**Abstract of EP0968875**

Material for flooring in cars consists of complex multilayer structure in which all constituents are selected from the family of synthetic polymers based on polyolefins, most particularly those based on polyethylene. Material for flooring in cars consists of complex multilayer structure comprising interior layer which is in contact with floor car and which acts as shock and sound absorber covered with surface layer which has a high resistance to scratching, the two layers being bound to one another; all said constituents being selected from the family of synthetic polymers based on polyolefins, most particularly those based on polyethylene; the surface layer consisting of composition comprising mixture of high and low density polyethylenes, ethylene vinyl acetate and fillers; supporting layer, in contact with floor, is based on densely filled low density polyethylene; and the association of the two layers is carried out by complexation during extrusion of surface sheet, said complexation being carried out by squeezing said sheet while it is at a high temperature. An independent claim is also included for method for making said material.

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(11) **EP 0 968 875 A1**

(12) **DEMANDE DE BREVET EUROPEEN**

(43) Date de publication:  
05.01.2000 Bulletin 2000/01

(51) Int Cl<sup>7</sup>: **B60N 3/04**

(21) Numéro de dépôt: 99420106.9

(22) Date de dépôt: 27.04.1999

(84) Etats contractants désignés:  
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU  
MC NL PT SE**  
Etats d'extension désignés:  
**AL LT LV MK RO SI**

(72) Inventeurs  
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(30) Priorité: 30.06.1998 FR 9808481

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(71) Demandeur **TEXTILES ET PLASTIQUES  
CHOMARAT**  
**07160 Le Cheylard (FR)**

(54) **Revêtement de sol pour automobiles notamment et procédé pour son obtention**

(57) Matériau pour le revêtement de sol pour automobiles constitué par un complexe multicouches comportant une couche intérieure destinée à être en contact avec la surface à revêtir et assurant le confort, l'absorption des chocs, l'insonorisation, recouverte d'une couche de surface présentant une grande résistance à l'abrasion, les deux couches étant intimement liées l'une à l'autre

Il se caractérise en ce que la totalité de ces constituants sont sélectionnés dans la famille des polymères synthétiques à base de polyoléfine, et plus particulièrement à base de polyéthylène

- la couche de surface dudit complexe étant constituée par une composition comportant un mélange de polyéthylène basse densité, polyéthylène haute densité, éthylène vinyl acétate et des charges ;
- la couche support destinée à être en contact avec la surface à revêtir étant quant à elle à base d'une composition de polyéthylène basse densité fortement chargée ;
- l'association des deux couches entre elles est réalisée par complexage des deux constituants lors de l'extrusion de la feuille de surface, le complexage étant réalisé par calandrage immédiatement à la sortie de l'extrudeuse du film de surface alors que ce dernier est encore à température élevée

0 968 875 A1

**Description**

**Domaine Technique**

[0001] Dans le secteur de l'automobile, le plancher du véhicule est en général recouvert d'un revêtement ayant pour but non seulement d'assurer la finition, mais également de réaliser une isolation tant phonique que thermique de l'habitacle.

[0002] L'invention porte sur un nouveau type de revêtement utilisable pour une telle application ; elle concerne également un procédé de fabrication.

**Techniques antérieures**

[0003] A ce jour, pour réaliser ces revêtements, on utilise en général des revêtements de sol conventionnels constitués par exemple par une structure textile du type feutre, tapis aiguilleté ou autre, associée éventuellement à une sous-couche en mousse ou autre

[0004] Afin de faciliter l'entretien et améliorer la résistance aux frottements, on associe en général à de tels revêtements textiles des tapis en caoutchouc qui sont soit intégrés dans des zones prédéterminées de la structure textile, soit simplement rapportés sur cette dernière

[0005] Par ailleurs, il a également été proposé de réaliser des revêtements constitués entièrement par une structure en caoutchouc qui est disposée soit directement sur le plancher du véhicule, soit sur une couche intermédiaire isolante telle qu'un feutre

[0006] Dans le domaine des revêtements de sol, pour habitations notamment, il a été également proposé depuis fort longtemps d'utiliser des complexes à base de matériau synthétique, tel que par exemple chlorure de polyvinyle (PVC) ou similaire, associé en général à une structure de renforcement qui peut être soit noyée dans la masse de la matière soit rapportée contre la face envers de cette dernière

[0007] Très souvent, cette feuille thermoplastique renforcée ou non est associée à une sous-couche, en mousse notamment, et ce pour améliorer le confort et l'isolation

[0008] De tels revêtements de sol ne sont cependant pas adaptés pour réaliser le revêtement de planchers de véhicules qui, en général, ne sont pas parfaitement plans, ce qui implique que le revêtement doit parfois être conformé

[0009] Par ailleurs, l'action exercée par les utilisateurs d'un véhicule sur le revêtement de sol, est totalement différente de celle d'un usage normal de revêtement de sol pour une habitation, ou tout autre type de locaux.

[0010] En effet, outre les caractéristiques d'isolation phonique et thermiques que doit présenter un revêtement de sol pour automobile, il doit également être parfaitement stable lorsqu'il est mis en place, présenter une grande résistance à l'abrasion et au poinçonnement,

être facile à entretenir, et enfin, pouvoir être recyclé

**Exposé de l'invention**

5 [0011] Or on a trouvé, et c'est ce qui fait l'objet de la présente invention, un nouveau type de matériau particulièrement adapté pour réaliser le revêtement des parois internes d'un véhicule et plus particulièrement du plancher de l'habitacle qui non seulement, permet de remplir l'ensemble des conditions exigées pour une telle utilisation à savoir insonorisation phonique et thermique, conformabilité, résistance à l'abrasion et au poinçonnement, facilité d'entretien, et qui, par ailleurs, présente une très grande stabilité après mise en place et parfaitement recyclable

[0012] Par ailleurs, ce matériau est susceptible de recevoir un décor de surface, sa face visible pouvant avoir un aspect lisse, brillant ou mat, et/ou grané, aspect obtenu simultanément à la réalisation du complexe sans traitement ultérieur et peut être utilisé au lieu et place des tapis en caoutchouc conventionnels

20 [0013] D'une manière générale, le matériau conforme à l'invention est donc constitué par un complexe multicouches comportant une couche intérieure dite « couche support » destinée à être en contact avec la surface à revêtir et assurant le confort, l'absorption des chocs, l'insonorisation, recouverte d'une couche de surface présentant une grande résistance à l'abrasion, les deux couches étant intimement liées l'une à l'autre

30 [0014] Le matériau conforme à l'invention se caractérise en ce que la totalité de ces constituants sont sélectionnés dans la famille des polymères synthétiques à base de polyoléfine, et plus particulièrement à base de polyéthylène

- 35 - la couche de surface dudit complexe étant constituée par une composition comportant un mélange de polyéthylène basse densité, polyéthylène haute densité, éthylène vinyl acetate et des charges ;
- 40 - la couche support destinée à être en contact avec la surface à revêtir étant quant à elle à base d'une composition de polyéthylène basse densité fortement chargée ;
- 45 - l'association des deux couches entre elles est réalisée par complexage des deux constituants lors de l'extrusion de la feuille de surface, le complexage étant réalisé par calandrage immédiatement à la sortie de l'extrudeuse du film de surface alors que ce dernier est encore à température élevée

50 [0015] La formulation des différentes couches entrant dans la constitution d'un complexe conforme à l'invention peut varier en fonction des propriétés finales que l'on souhaite obtenir en fonction de la zone du véhicule où le revêtement doit être disposé et les zones pour lesquelles on souhaite avoir par exemple une résistance à l'abrasion ou aux rayures, une isolation thermique et/ou phonique plus ou moins importante



[0016] Pour la feuille de surface à base de polyoléfine, la formulation type peut comporter environ 10 à 12 % de charge telle que carbonate de calcium pour 53 à 58 % de polyéthylène basse densité et 5 à 30 % de polyéthylène haute densité, la polyéthylène haute densité apportant une augmentation de la dureté de surface donnant une meilleure résistance à la rayure

[0017] Le poids au mètre carré de cette feuille de surface peut être compris entre 100 et 800 g/m<sup>2</sup>, voire même plus, mais, en général il est de l'ordre de 300 à 500 g/m<sup>2</sup>

[0018] Le poids de la feuille de surface sera essentiellement adapté en fonction de l'état final que l'on veut donner à ladite feuille et notamment aux grain que l'on lui communiquer

[0019] Concernant la couche support, elle est à base de polyéthylène fortement chargée, la quantité de charge, constituée de sulfate de baryum, étant de l'ordre de 80 % en poids par rapport au support formé, ce qui permet d'obtenir une structure lourde améliorant la stabilité et évitant les glissements lorsque le complexe est disposé directement contre le sol.

[0020] Une telle couche support a un poids au mètre carré qui peut varier de 1,5 à 8 kilos voire même plus, une feuille pesant de l'ordre de 2 à 5 kg/m<sup>2</sup> convenant pour la plupart des applications.

[0021] La densité de cette structure chargée peut être comprise entre 1 et 3 et est avantageusement égale à 2

[0022] Eventuellement, un support non tissé ou autre structure textile, de préférence également à base de polyéthylène ou polypropylène, peut être incorporé à cette sous-couche permettant ainsi d'améliorer les performances mécaniques du complexe et notamment la résistance au poinçonnement

[0023] L'invention porte également sur un procédé permettant la réalisation d'un tel complexe, ledit procédé consistant :

- à disposer, à la sortie d'une extrudeuse, une calandre comportant de préférence un cylindre en acier et un cylindre revêtu d'une surface à base de caoutchouc;
- à introduire dans l'espace compris entre les cylindres de la calandre une feuille support préalablement préparée à base de polyéthylène fortement chargée et,
- à extruder le film destiné à constituer la couche de surface, la température de la feuille étant comprise entre 200 et 250°C et de préférence 230°C ;
- et à associer ladite couche de surface et la feuille préalablement formée par passage de ces deux éléments à travers de la calandre.

[0024] Eventuellement, afin de favoriser l'adhésion des deux constituants entre eux, la feuille préalablement préparée qui est destinée à constituer la couche support lourde du complexe peut être préchauffée.

[0025] Selon une forme préférentielle de mise en

oeuvre de ce procédé, la couche lourde préalablement préparée est amenée à l'intérieur de la calandre par passage sur le cylindre caoutchouté, alors que le film de surface est, quant à lui, en contact avec le cylindre en acier.

[0026] En procédant d'une telle manière, il est donc possible d'appliquer un grainage sur la feuille de surface et, également, en réglant la température du cylindre en acier, il est possible de modifier la brillance du matériau

La feuille est d'autant plus mate que la température est élevée, cette température étant cependant réglée au maximum à environ 80°C

Manière de réaliser l'invention

[0027] L'invention et les avantages qu'elle apporte seront cependant mieux compris grâce aux exemples concrets de réalisation donnés ci-après à titre indicatif, mais non limitatif

Exemple 1

[0028] On réalise un complexe conforme à l'invention comportant un support constitué d'une feuille de polyéthylène préalablement réalisé comportant :

- 20 % de polyéthylène
- 80 % de charge constituée par des carbonates de calcium.

[0029] Le poids de ce support est de 2,6 kg/m<sup>2</sup> et il a une épaisseur de 2 mm.

[0030] Sa densité est de l'ordre de 2.

[0031] Il comporte un renfort constitué par un non tissé, également à base de polyéthylène pesant 30 g/m<sup>2</sup>

[0032] A ce support, sur une installation de calendrage disposée en aval d'une extrudeuse, on associe un film extrudé à une température de 230°C et constitué d'une composition comportant :

- 12 % de charge carbonate de calcium,
- 78 % de polyéthylène basse densité et,
- 10 % de polyéthylène haute densité.

[0033] Le poids de la feuille extrudée est de 500 g/m<sup>2</sup> et elle est associée par calendrage en étant en contact avec le cylindre en acier de la calandre. La vitesse de rotation des rouleaux de la calandre est telle que l'on obtient une production de 5 m/min. La température du cylindre en acier de la calandre est de 30°C

[0034] Après calendrage, on obtient un complexe pesant 3100 g/m<sup>2</sup> et dont la face supérieure est lisse et brillante

Exemple 2

[0035] On répète l'exemple précédent si ce n'est que les compositions des constituants sont les suivantes :

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EP 0 968 875 A1

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[0036] La feuille support est constituée par une feuille de polyéthylène fortement chargée comportant :

- 20 % de polyéthylène
- 80 % de charge constituée par des carbonates de calcium

[0037] Cette feuille pèse 4 kg/m<sup>2</sup>, a une densité de 2, et une épaisseur de 2 mm

[0038] La feuille de surface destinée à être associée à ce support est obtenue comme précédemment, par extrusion et a la composition suivante :

- 12 % charge;
- 58 % polyéthylène basse densité et,
- 30 % polyéthylène haute densité

[0039] La calandre utilisée pour réaliser l'association des deux constituants comporte un cylindre en acier grainé et les conditions de calandrage sont les mêmes qu'à l'exemple 1.

[0040] Le produit obtenu pèse 4500 g/m<sup>2</sup> et a un aspect grainé brillant

**Exemple 3**

[0041] On répète l'exemple 2, si ce n'est que le cylindre en acier de la calandre est porté à une température de 80°C

[0042] On obtient un article similaire à celui de l'exemple 2 si ce n'est que l'aspect de surface est beaucoup plus mat.

[0043] Les complexes obtenus conformément à l'invention peuvent être utilisés pour réaliser des revêtements internes d'habitacles de véhicules et plus particulièrement servir pour la réalisation de tapis de sol remplaçant les tapis en caoutchouc utilisés pour une telle application.

[0044] De tels matériaux présentent une très grande résistance à l'abrasion, à la rayure, une bonne isolation phonique et/ou thermique, et peuvent également être conformés

[0045] Enfin, ils sont recyclables très facilement.

**Revendications**

1. Matériau pour le revêtement de sol pour automobiles constituée par un complexe multicouche comportant une couche inférieure destinée à être en contact avec la surface à revêtir et assurant le confort, l'absorption des chocs, l'insonorisation, recouverte d'une couche de surface présentant une grande résistance à l'abrasion, les deux couches étant intimement liées l'une à l'autre, caractérisé en ce que la totalité de ces constituants sont sélectionnés dans la famille des polymères synthétiques à base de polyoléfine, et plus particulièrement à base de

polyéthylène :

- la couche de surface dudit complexe étant constituée par une composition comportant un mélange de polyéthylène basse densité, polyéthylène haute densité, éthylène vinyl acétate et des charges ;
- la couche support destinée à être en contact avec la surface à revêtir étant quant à elle à base d'une composition de polyéthylène basse densité fortement chargée ;
- l'association des deux couches entre elles est réalisée par complexage des deux constituants lors de l'extrusion de la feuille de surface, le complexage étant réalisé par calandrage immédiatement à la sortie de l'extrudeuse du film de surface alors que ce dernier est encore à température élevée

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2. Matériau selon la revendication 1, caractérisé en ce que la couche de surface est réalisée à partir d'une composition dont la formulation est telle qu'elle comporte environ 10 à 12 % de charge, telle que carbonate de calcium pour 83 à 58 % de polyéthylène basse densité et 5 à 30 % de polyéthylène haute densité.

3. Matériau selon la revendication 2, caractérisé en ce que le poids au mètre carré de la feuille de surface est compris entre 100 et 800 g/m<sup>2</sup>, voire même plus, mais en général, de l'ordre de 400 à 500 g/m<sup>2</sup>

4. Matériau selon l'une des revendications 2 et 3, caractérisé en ce que le poids de la feuille de surface est adapté en fonction de l'état final que l'on veut donner à ladite feuille et notamment aux grains que l'on lui communiquer

5. Matériau selon la revendication 1, caractérisé en ce que pour la couche support est à base de polyéthylène basse densité fortement chargé, la quantité de charge, également constituée de carbonate de calcium, étant de l'ordre de 80 % en poids par rapport au support formé

6. Matériau selon la revendication 5, caractérisé en ce que la couche support a un poids au mètre carré qui varie de 1,5 à 8 kilos voire même plus, une feuille pesant de l'ordre de 2 à 4 kg/m<sup>2</sup> convenant pour la plupart des applications.

7. Matériau selon l'une des revendications 5 et 6, caractérisé en ce que la densité de cette structure chargée est comprise entre 1 et 3 et est avantageusement égale à 2.

8. Matériau selon l'une des revendications 5 à 7, caractérisé en ce qu'un support non tissé ou autre

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EP 0 968 875 A1

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structure textile, de préférence également à base de polyéthylène, est incorporé à cette sous-couche permettant ainsi d'améliorer les performances mécaniques du complexe et notamment la résistance au poinçonnement.

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9. Procédé permettant la réalisation d'un tel complexe selon les revendications 1 à 8, ledit procédé consistant

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- à disposer, à la sortie d'une extrudeuse, une calandre comportant de préférence un cylindre en acier et un cylindre revêtu d'une surface à base de caoutchouc,
- à introduire dans l'espace compris entre les cylindres de la calandre une feuille support préalablement préparée à base de polyéthylène fortement chargé et ;
- à extruder le film destiné à constituer la couche de surface, la température de la feuille étant comprise entre 200 et 250°C et de préférence 230°C
- et à associer ladite couche de surface et la feuille préalablement formée par passage de ces deux éléments à travers de la calandre.

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durch gekennzeichnet, dass ein Träger aus Faservlies oder einer anderen Texturstruktur, vorzugsweise ebenfalls auf der Basis von Polyethylen, in dieser Unterschicht aufgenommen ist, wodurch es möglich ist, die mechanischen Leistungen des Verbundmaterials und insbesondere die Stanzfestigkeit zu verbessern

9. Verfahren, das die Herstellung eines solchen Komplexes nach den Ansprüchen 1 bis 8 ermöglicht, wobei das genannte Verfahren darauf beruht:

- am Austritt eines Extruders einen Kalandrier mit zwei Walzen, vorzugsweise einer Stahlwalze und einer mit einer Oberfläche auf der Basis von Gummi beschichteten Walze anzuordnen,
- in den Raum zwischen den Walzen des Kalandriers eine zuvor hergestellte Trägerfolie auf der Basis von stark gefülltem Polyethylen einzuführen;
- den Film, welcher die Oberflächenschicht bilden soll, zu extrudieren, wobei die Temperatur der Folie zwischen 200°C und 250°C und vorzugsweise bei 230°C liegt; und
- die genannte Oberflächenschicht und die zuvor gebildete Folie durch Durchführen dieser beiden Elemente durch den Kalandrier miteinander zu verbinden.

Claims

1. Material for floor coverings used in motor vehicles, formed by a multilayer complex comprising a lower, backing layer, that is intended to be in contact with the surface to be covered and provides comfort, shock absorption and soundproofing, covered with a surface layer having a high abrasion resistance, the two layers being intimately bonded to each other, the two layers being joined together by complexing the backing layer with the surface layer during extrusion of the surface film, the complexing being carried out by calendaring immediately after the extruder for the surface film, while the latter is still at high temperature, characterized in that:

- the backing layer and the surface layer are selected from the family of synthetic polymers based on polyolefins, and more particularly based on polyethylene;
- the surface layer of the said complex is formed by a composition comprising a compound of low-density polyethylene, high-density polyethylene, ethylene-vinyl acetate and fillers;
- the surface layer is embossed during complexing of the backing layer with the surface layer; and
- the backing layer intended to be in contact with

the surface to be covered is based on a highly filled low-density polyethylene composition

2. Material according to Claim 1, characterized in that the surface layer is made from a composition whose formulation is such that it contains about 10% to 12% filler, such as calcium carbonate, 83% to 58% low-density polyethylene and 5% to 30% high-density polyethylene

3. Material according to Claim 2, characterized in that the weight per square metre of the surface sheet is between 100 g/m<sup>2</sup> and 800 g/m<sup>2</sup>, or even more, but in general around 400 g/m<sup>2</sup> to 500 g/m<sup>2</sup>.

4. Material according to either of Claims 2 and 3, characterized in that the weight of the surface sheet is tailored according to the final state that it is desired to give the said sheet and especially to the embossment that it is desired to give it

5. Material according to Claim 1, characterized in that the backing layer is based on highly filled low-density polyethylene, the amount of filler, also consisting of calcium carbonate, being around 80% by weight relative to the backing formed

6. Material according to Claim 5, characterized in that the backing layer has a weight per square metre that varies from 1.5 kg to 8 kg, or higher, a sheet weighing around 2 kg/m<sup>2</sup> to 4 kg/m<sup>2</sup> being suitable for most applications

7. Material according to either of Claims 5 and 6, characterized in that the density of this structure is between 1 and 3 and is advantageously equal to 2.

8. Material according to one of Claims 5 to 7, characterized in that a non-woven backing or another textile structure, preferably also based on polyethylene, is incorporated into this underlayer, thus making it possible to improve the mechanical performance of the complex and especially the puncture resistance

9. Process for producing such a complex according to Claims 1 to 8, the said process consisting

- in placing, at the exit of an extruder, a calender comprising two rolls, preferably a steel roll and a roll clad with a rubber-based surface;
- in introducing, into the space lying between the rolls of the calender, a backing sheet prepared beforehand, based on highly filled polyethylene,
- in extruding the film intended to form the surface layer, the temperature of the sheet being between 200°C and 250°C and preferably

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EP 0 968 875 B1

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- 230°C; and
- in joining the said surface layer to the pre-formed sheet by passing these two elements through the calender.

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PLUS Search Results for S/N 10976441, Searched November 18, 2005

The Patent Linguistics Utility System (PLUS) is a USPTO automated search system for U.S. Patents from 1971 to the present. PLUS is a query-by-example search system which produces a list of patents that are most closely related linguistically to the application searched. This search was prepared by the staff of the Scientific and Technical Information Center, SIRA.

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APPLICATION NUMBER	FILING/RECEIPT DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO.
10/976,441	10/29/2004	David F. MacNeil	301700-00069

**CONFIRMATION NO. 2133**
 43138  
 DASPIN & AUMENT, LLP  
 210 WEST 22ND STREET, SUITE 102  
 OAK BROOK, IL 60523


\*OC000000015667616\*

Date Mailed: 04/06/2005

### Communication Regarding Rescission Of Nonpublication Request and/or Notice of Foreign Filing

Applicant's rescission of the previously-filed nonpublication request and/or notice of foreign filing is acknowledged. The paper has been reflected in the Patent and Trademark Office's (USPTO's) computer records so that the earliest possible projected publication date can be assigned.

The projected publication date is 05/04/2006.

If applicant rescinded the nonpublication request before or on the date of "foreign filing,"<sup>1</sup> then no notice of foreign filing is required.

If applicant foreign filed the application after filing the above application and before filing the rescission, and the rescission did not also include a notice of foreign filing, then a notice of foreign filing (not merely a rescission) is required to be filed within 45 days of the date of foreign filing. See 35 U.S.C. § 122(b)(2)(B)(iii), and Clarification of the United States Patent and Trademark Office's Interpretation of the Provisions of 35 U.S.C. § 122(b)(2)(B)(ii)-(iv), 1272 Off. Gaz. Pat. Office 22 (July 1, 2003).

If a notice of foreign filing is required and is not filed within 45 days of the date of foreign filing, then the application becomes abandoned pursuant to 35 U.S.C. § 122(b)(2)(B)(iii). In this situation, applicant should either file a petition to revive or notify the Office that the application is abandoned. See 37 CFR 1.137(f). Any such petition to revive will be forwarded to the Office of Petitions for a decision. Note that the filing of the petition will not operate to stay any period of reply that may be running against the application.

Questions regarding petitions to revive should be directed to the Office of Petitions at (571) 272-3282. Questions regarding publications of patent applications should be directed to the patent application publication hotline at (703) 605-4283 or by e-mail [pgsub@uspto.gov](mailto:pgsub@uspto.gov).

<sup>1</sup> Note, for purpose of this notice, that "foreign filing" means "filing an application directed to the same invention in another country, or under a multilateral international agreement, that requires publication of applications 18 months after filing".

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Attorney Docket No. 301700-00069

APR 01 2005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: David F. MACNEIL

Serial No.: 10/976,441

Filed: October 29, 2004

Art Unit: 3612

Examiner:

Confirmation No. 2133

Title: VEHICLE FLOOR TRAY

Mail Stop PGPUB  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

I hereby certify that this correspondence is being facsimile transmitted (703 872 9306) to Mail Stop PGPUB, Commissioner for Patents, P O Box 1450, Alexandria, VA 22313-1450, on

04/11/05  
Date  
*Laura Nettleton*  
Laura Nettleton

RESCISSION OF PREVIOUS NONPUBLICATION REQUEST  
UNDER 35 USC § 122(b)(2)(B)(i);  
NOTICE OF FOREIGN FILING UNDER 35 USC 122(b)(2)(B)(iii)

Dear Sir:

A request that the above-identified application not be published under 35 USC § 122(b) was included with the above-identified application on filing.

Applicant hereby rescinds the previous nonpublication request.


If a notice of foreign or international filing is or will be required by 35 USC §122(b)(2)(B)(iii) and 37 CFR § 1.213(c), Applicant hereby provides such notice. This notice is being provided no later than forty-five days after the date of such filing.



Attorney Docket No. 301700-00069

No fee is thought to be due with the submission of this paper. However, the Commissioner is authorized to charge USPTO Deposit Account No. 503138 of Daspin & Aument, LLP for any fee deficiency.

Respectfully submitted,

  
\_\_\_\_\_  
Jefferson Perkins  
Reg. No. 31,407

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JAN 10 2005

Attorney Docket No. 301700-00069

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: David F. MACNEIL  
Serial No.: 10/976,441  
Filed: October 29, 2004  
Art Unit: 3612  
Examiner: Not yet assigned  
Confirmation No.: 2133

I hereby certify that this correspondence is being transmitted via facsimile (703 872 9306) to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on	
1/10/05	Date
<i>Laura Nettleton</i>	Laura Nettleton
1/10/05	Date of Signature

Title: VEHICLE FLOOR TRAY

CUSTOMER NUMBER: 43138

Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. §1.97(B)**

Dear Sir:

Pursuant to 37 C.F.R. §§ 1.56 and 1.97(b), Applicant brings to the attention of the Examiner the documents listed on the attached form(s) PTO SB08A/B. This Information Disclosure Statement is being filed within three months of the filing date of this application and prior to receipt of the first Office Action on the merits. Applicant encloses copies of those listed documents other than those which are US patents, US published patent applications, or which have been made of record in an application upon which Applicant relies for a priority date under 35 USC § 120. 37 CFR 1.97(d).

Attorney Docket No. 301700-00069

Several of the listed documents are downloads of web pages from various publicly available web sites on the Internet. While the download dates are all less than one year prior to the Application filing date and do not constitute prior art per se, it is Applicant's belief that the structure illustrated and described therein was in public use more than one year prior to the application filing date.

Applicant respectfully requests that the Examiner consider the listed documents, and evidence that consideration of relevant portions thereof by making appropriate notations on the attached form.

It is believed that these references either taken alone or in combination do not disclose or suggest the invention claimed by the Applicant. However, it is the Applicant's desire to have these references available in the record for both the Examiner and the public to see. The Applicant specifically reserves all rights of privilege and confidence with respect to this matter and submission of this document is not to be construed as a waiver of those rights. Moreover, submission of this document should not be considered an admission that the references cited herein are proper prior art to the aforementioned application.

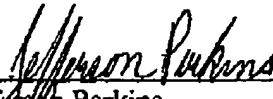
This submission does not represent that a search has been made or that no better art exists and does not constitute an admission that each or all of the listed documents are material or constitute "prior art." If it should be determined that any of the listed documents do not constitute "prior art" under United States law, Applicant reserves the right to present to the Office the relevant facts and law regarding the appropriate status of such documents.

Applicant further reserves the right to take appropriate action to establish the patentability of the disclosed invention over the listed documents, should one or more of the documents be applied against the claims of the present application.

Attorney Docket No. 301700-00069

No fee is thought to be due with this Information Disclosure Statement. However, if there is any fee due in connection with this submission, please charge the fee to our Deposit Account No. 503138 of Daspin & Aument, LLP.

Respectfully submitted,

  
\_\_\_\_\_  
Jefferson Perkins  
Reg. No. 31,407

DASPIN & AUMENT, LLP  
210 West 22<sup>nd</sup> Street, Suite 102  
Oak Brook, Illinois 60523  
Telephone: (630) 990-4503

PTO/SB/06A (04-03)

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U.S. Patent and Trademark Office, U.S. DEPARTMENT OF COMMERCE

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Substitute for form 1449/PTO

**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(use as many sheets as necessary)

**Complete if Known**

Application Number	10/976,441
Filing Date	October 29, 2004
First Named Inventor	David F. MACNEIL
Art Unit	3612
Examiner Name	not yet assigned
Attorney Docket Number	301700-00069

Sheet 1 of 3

**U. S. PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2 (if known)</sup>			
		US- Des. 377,780	02-04-1997	MacNeil	
		US- 6,027,782	02-22-2000	Sherman	
		US- 6,155,629	12-05-2000	Sherman	
		US-			
		US-			
		US-			
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**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T*
		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5 (if known)</sup>				

Examiner Signature

Date Considered

\*EXAMINER Initial if reference considered, whether or not citation is in conformance with MPEP 808. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. <sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

PTO/SB/086 (08-03)  
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Substitute for form 1449/PTO		<b>Complete if Known</b>	
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		Filing Date	October 29, 2004
		First Named Inventor	David F. MACNEIL
		Art Unit	3612
		Examiner Name	Not yet assigned
		Attorney Docket Number	301700-00069
Sheet	2	of	3

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
		Husky Liner for 1999 Ford Super Duty, downloaded from <a href="http://www.huskyliners.com/superduty.html">http://www.huskyliners.com/superduty.html</a> on January 3, 2005	
		Autoform Trunk Liner, English web page, downloaded from <a href="http://www.autoform.se/eng/products_trunk_liners.htm">http://www.autoform.se/eng/products_trunk_liners.htm</a> on October 20, 2004	
		"Installation Instructions For Your F-150/F-250 Ford Truck Front Floor Liners", Winfield Consumer Products, February 1, 2001, downloaded from <a href="http://www.huskyliners.com">http://www.huskyliners.com</a> on	
		(continued from last entry) January 3, 2005	
		Husky Deep Tray Floor Liner, downloaded from <a href="http://www.truckstuffusa.com/cusfitdeepr.html">http://www.truckstuffusa.com/cusfitdeepr.html</a> on January 3, 2005	
		Web pages featuring products from 3D Carpet Liners, Weatherboots, Nifty Products, Inc. and Husky, downloaded from <a href="http://www.premiermotoring.net">http://www.premiermotoring.net</a> on August 11, 2004	
		WeatherTech Floor Mat and Cargo Liner Product Sheets, MacNeil Automotive Products Limited, Downers Grove, IL, Nov. 1994, 4 pp.	
		Faro Laser ScanArm, downloaded from <a href="http://www.faro.com/Products/ScanArm.asp">http://www.faro.com/Products/ScanArm.asp</a> on September 23, 2004	
		Faro ScanArm Product Techsheet, downloaded from <a href="http://www.faro.com/Products/Product_Techsheets.asp?techsheet_id=106">http://www.faro.com/Products/Product_Techsheets.asp?techsheet_id=106</a> on October 11, 2004	
		"CMM Produces Bikes With Custom-Look", downloaded from <a href="http://manufacturingcenter.com/man/articles/0604/0604CMM.asp">http://manufacturingcenter.com/man/articles/0604/0604CMM.asp</a> on Oct 11, 2004	

Examiner Signature	Date Considered
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 809. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.  
<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.  
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		Application Number	10/976.441
		Filing Date	October 29, 2004
		First Named Inventor	David F. MACNEIL
		Art Unit	3612
		Examiner Name	not yet assigned
Sheet 3 of 3	Attorney Docket Number	301700-00069	

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
		"Stereolithography (SLA) for Rapid Precision Prototypes", p. 1, downloaded from <a href="http://www.boedeker.com/sla.htm">http://www.boedeker.com/sla.htm</a> on Oct. 12, 2004	
		"About Coordinate Measuring Machines (CMM)", downloaded from <a href="http://cmm.globalspec.com">http://cmm.globalspec.com</a> on Oct. 11, 2004	
		"Bagagerumsmattor", downloaded from <a href="http://www.autoform.se/sv/produkter_bagagerumsmattor.htm">http://www.autoform.se/sv/produkter_bagagerumsmattor.htm</a> on Oct. 20, 2004	
		STRICTLY Catalog for Explorer/Mountaineer/Expedition/Navigator, MacNeil Automotive Products Limited, Downers Grove, IL, 1999, pp. 1- 2 and 4 - 7	

Examiner Signature	Date Considered
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04772 U.S. PTO  
102904

Attorney Docket No. 301700-00069

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

13441 U.S. PTO  
10/976441  
102904

Inventor: David F. MACNEIL  
Title: VEHICLE FLOOR TRAY  
Filed: Herewith

"Express Mail" Mailing Label  
 No. ER 382 614 261  
 Date of Deposit October 29, 2004

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

La Shon Turner  
 La Shon Turner

CUSTOMER NO.: 43138

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

UTILITY PATENT APPLICATION TRANSMITTAL

*New nonprovisional application under 37 CFR 1.53(b)*

1.  Fee Transmittal Form *(Submit an original, and a duplicate for fee processing)*
2.  Specification, including claims and abstract [Total Pages  ]
3.  Drawings [Total Pages  ]
4.  Declaration of Inventor [Total Pages  ]
  - a.  Unexecuted
  - b.  Newly executed
  - c.  Copy from a prior application (37 CFR 1.63(d))  
*(for continuation/divisional with Box 17 completed)*  
*[Note Box 5 below]*
    - i.  DELETION OF INVENTOR(S)  
 Signed statement attached deleting inventor(s) named in the prior application (see 37 CFR 1.63(d)(2) and 1.33(b)).
5.  Incorporation By Reference *(useable if Box 4c is checked)*. The entire disclosure of the prior application, from which a copy of the oath or declaration is supplied under Box 4c, is considered as being part of the disclosure of the accompanying application and is hereby incorporated by reference therein.
6.  Application Data Sheet



7.  CD-ROM or CD-R in duplicate, large table or Computer Program (Appendix)

**DOCUMENTS ACCOMPANYING APPLICATION PARTS**

8.  Assignment Papers (cover sheet and documents)
9.  37 CFR 3.73(b) Statement and Power of Attorney  Power of Attorney  
*(when there is an assignee)*
10.  English Translation Document *(if applicable)*
11.  Information Disclosure Statement (IDS)/PTO/SB/08A,B  Copy of those cited references which are not US patents or US patent appln. publications
12.  Preliminary Amendment
13.  Return Receipt Postcard (MPEP 503) *(Should be specifically itemized)*
14.  Certified Copy of Priority Document(s) *(if foreign priority is claimed)*
15.  Request Not to Publish and Certification Under 35 U.S.C. §122(b)(2)(B)(i)
16.  Other: .....

17. If a CONTINUING APPLICATION, check the appropriate box and supply the requisite information.
- Continuation  Divisional  Continuation-in-part (CIP) ... of prior application No.: \_\_\_\_\_

Examiner: \_\_\_\_\_ Art Unit: \_\_\_\_\_

18. Correspondence Address: **CUSTOMER NUMBER 43138**

NAME: Jefferson Perkins  
ADDRESS: DASPIN & AUMENT, LLP  
210 W. 22<sup>nd</sup> Street, Suite 102  
CITY: Oak Brook STATE: Illinois ZIP CODE: 60523  
COUNTRY: USA TELEPHONE: (630) 990-4503 FAX: (630) 990-4511

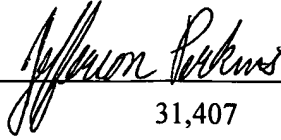
19.  Applicant asserts small entity status under 37 CFR 1.27.

20. SIGNATURE OF ATTORNEY FOR APPLICANT:

*NAME:*

Jefferson Perkins

*SIGNATURE:*

A handwritten signature in cursive script that reads "Jefferson Perkins". The signature is written over a horizontal line.

*REGISTRATION*

31,407

*DATE*

October 29, 2004

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

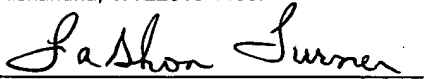
First Named Inventor: David F. MACNEIL

Filed: Herewith

Title: VEHICLE FLOOR TRAY

**CUSTOMER NO.: 43138**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

"Express Mail" Mailing Label	
No.	<u>ER 382 614 261</u>
Date of Deposit:	<u>10-29-2004</u>
<p>I hereby certify that this correspondence is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.</p>	
 LaShon Turner	

**UTILITY PATENT APPLICATION FEE TRANSMITTAL**

*(submit in duplicate)*

Dear Sir:


Applicant calculates the fees associated with the enclosed papers as follows:

37CFR Section	Fee Code	Fee Description	Fee Paid
1.16(a)	2001	Basic Fee, Small Entity	\$385.00
1.16(b)	2201	Independent Claims in excess of three, small entity (10 - 3) x \$44.00 =	\$308.00
1.16(c)	2202	Total Claims in excess of twenty, small entity (84 - 20) x \$9.00 =	\$576.00
		<b>Total</b>	<b>\$1,269.00</b>

A check to the Director of the United States Patent and Trademark Office is enclosed for \$1,093.00 in partial payment for the above fees. The Commissioner is hereby directed to charge the deficiency of \$176.00, and to credit any overpayment, or charge any other deficiency in the following fees to Deposit Account No. 503138 of Daspin & Aument LLP:

- Any additional filing fees required under 37 CFR §1.16 for the application or any amendment thereto, once any check for fees submitted herewith has been taken into account.
- Fees required under 37 CFR §1.17.

Respectfully submitted,

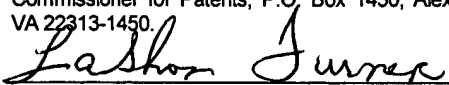
  
\_\_\_\_\_  
Jefferson Perkins  
Registration No. 31,407

DASPIN & AUMENT, LLP  
210 West 22<sup>nd</sup> Street, Suite 102  
Oak Brook, Illinois 60523  
Telephone: (630) 990-4503

Attorney Docket No.: 301700-00069

**IN THE UNITED STATES PATENT & TRADEMARK OFFICE**

Inventor: David F. MACNEIL  
Filed: Herewith  
Title: VEHICLE FLOOR TRAY

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 La Shon Turner	

Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450


**REQUEST NOT TO PUBLISH AND**

**CERTIFICATION UNDER 35 U.S.C. 122(b)(2)(B)(i)**

Dear Sir:

I hereby certify that the invention disclosed in the attached application **has not and will not be** the subject of an application filed in another country, or under a multilateral agreement, that requires publication at eighteen months after filing. I hereby request that the attached application not be published under 35 U.S.C. 122(b).

Dated: October 29, 2004

  
Jefferson Perkins  
Registration No. 31,407

Daspin & Aument, LLP  
210 W. 22<sup>nd</sup> Street, Suite 102  
Oak Brook, Illinois 60523  
Telephone: (630) 990-4503

04772 U.S. PTO  
102904

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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La Shon Turner  
 La Shon Turner

CUSTOMER NO.: 43138

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

UTILITY PATENT APPLICATION TRANSMITTAL

New nonprovisional application under 37 CFR 1.53(b)

1.  Fee Transmittal Form (Submit an original, and a duplicate for fee processing)
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3.  Drawings [Total Pages  ]
4.  Declaration of Inventor [Total Pages  ]
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 Signed statement attached deleting inventor(s) named in the prior application (see 37 CFR 1.63(d)(2) and 1.33(b)).
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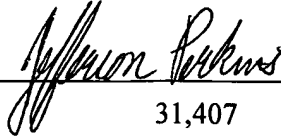
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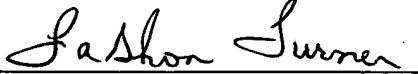
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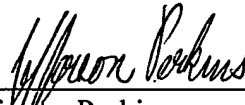
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Respectfully submitted,



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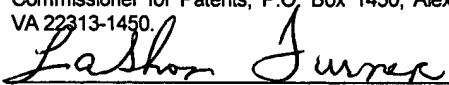
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**IN THE UNITED STATES PATENT & TRADEMARK OFFICE**

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Filed: Herewith  
Title: VEHICLE FLOOR TRAY

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Dated: October 29, 2004

  
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**APPLICATION FOR UNITED STATES PATENT**

**INVENTOR:     DAVID F. MACNEIL**

**TITLE:           VEHICLE FLOOR TRAY**

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## **VEHICLE FLOOR TRAY**

### **BACKGROUND OF THE INVENTION**

[0001] Motor vehicles are almost always operated in the out of doors and are frequently parked there. It is therefore very common for their occupants to have wet or muddy feet – if the occupants have not just finished an outdoor activity, at least they have had to walk across a possibly wet, snowy or muddy surface to access their vehicles. For decades, therefore, vehicle owners have been attempting to protect the enclosed interiors of their vehicles (cars, trucks, SUVs) from what they themselves track into them. The conventional solution to this has been to provide a vehicle floor mat which may be periodically removed by the owner and cleaned.

[0002] Human beings have a tendency to move their feet around, and foot motion is an absolute requirement in operating most vehicles. This has caused a problem, in that the occupants of a vehicle have a tendency to push around the floor mats with their feet. The floor mats end up not being centered on the area protected, or pushed up so as to occlude the gas, brake or clutch pedals, or bunched up or folded over – all undesirable conditions. One objective of floor mat manufacturers has therefore been to provide a floor mat that will stay put and which will not adversely affect vehicle operation.

[0003] The foot wells of cars, trucks and SUVs vary in size in shape from one model of vehicle to the next. Floor mat manufacturers have noticed that floor mats which at least approximately conform to the shape of the bottom surface of the foot well stay in place better and offer more protection. It is also common for such floor mats, where provided for front seat foot wells, to have portions which are meant to lie against the firewalls or front surfaces of the foot wells. Even as so extended it is not too hard to provide a floor mat of flexible

material that will approximately conform to these two surfaces, as the designer only has to mark a two-dimensional periphery of the mat in providing one which will fit reasonably well.

[0004] More recently, vehicle floor trays have come onto the market. Most front-seat vehicle foot wells are actually three-dimensional concave shapes, typically with complex curved surfaces. Floor trays have sidewalls that offer enhanced protection to the surfaces surrounding the vehicle floor, as might be needed against wearers with very muddy or snowy shoes. Conventional vehicle floor trays try to fit into these three-dimensional cavities, but so far their fit to the surfaces that they are supposed to protect has been less than optimum. A conventional vehicle floor tray is typically molded of a single-ply rubber or plastic material, exhibits enough stiffness to retain a three-dimensional shape, but is also at least somewhat flexible. Fitting such a tray to the complex three-dimensional surface of a vehicle foot well has proven to be difficult, and the products currently in the marketplace have limited consumer acceptance because of their loose fit inside the foot well. There is often, and in many places, a considerable space between the exterior wall of these conventional trays and the interior surface of the foot well. This causes the wall to noticeably deform when the occupant's foot contacts it. Vehicle owners have a tendency to dislike floor trays which rattle, deform, shift and flop about. A need therefore persists for a floor tray that will have a more exact fit to the vehicle foot well for which it is provided, that stays in place once it is installed, and that provides a more solid and certain feel to the occupants' feet.

[0005] Some vehicle floor mats that are now on the market have fluid reservoirs built into them. Particularly in cold or wet climates, dirty water has a tendency to be shed onto the floor mat, where it persists until it evaporates. If there is enough of it, it will leak off of the floor mat and stain the carpeting of the foot well that the mat was meant to protect. These reservoirs typically are recessed areas in the mats that provide the mats with an enhanced

ability to retain snow-melt and the like, until the water evaporates or can be disposed of by the vehicle owner or user. One advanced design places treads in the middle of the reservoir, such that the feet of the occupant are held above any fluid that the reservoir collects. But including such a reservoir within a floor tray that otherwise has an acceptable fit to the surface of a vehicle foot well has not yet been done, since there are problems in incorporating a three-dimensional liquid-holding vessel into a product that ideally conforms, on its lower surface, to the surface of the foot well. Further, a reservoir which collects drip water from a large surface, such as a vehicle floor tray, will exhibit more problems in keeping the collected fluid from sloshing about in a moving vehicle.

[0006] Conventional vehicle floor mats and trays are molded from a single rubber or plastic material. The selection of this material is controlled by its cost, its resistance to shear forces, its tensile strength, its abrasion resistance, its ability to conform to the surface of the vehicle foot well, its sound-deadening properties and how slippery or nonslippery it is relative to the occupants' feet, with nonslipperiness (having a relatively high coefficient of friction) being advantageous. Often the designer must make tradeoffs among these different design constraints in specifying the material from which the tray or mat is to be made.

#### SUMMARY OF THE INVENTION

[0007] According to one aspect of the invention, there is provided a vehicle floor cover, mat or tray which is removably installable by a consumer and which is formed of at least three layers that are bonded together, preferably by coextrusion. The three layers include a central layer whose composition is distinct from a bottom layer and a top layer. Preferably, all three layers are formed of thermoplastic polymer materials. In another aspect of the invention, the top layer exhibits a kinetic coefficient of friction with respect to a sample meant to emulate a typical shoe outsole (neoprene rubber, Shore A Durometer 60) of at least about 0.82.

[0008] Preferably, a major portion of the central layer is a polyolefin. More preferably, the polyolefin is either a polypropylene or a polyethylene. Most preferably, the polyolefin is high molecular weight polyethylene (HMPE) as herein defined. In an alternative embodiment, the central layer can be a styrene-acrylonitrile copolymer (SAN) or an acrylonitrile-butadiene-styrene (ABS) polymer blend.

[0009] Preferably, a major portion of the top layer is a thermoplastic elastomer, such as one of the proprietary compositions sold under the trademarks SANTOPRENE®, GEOLAST® and VYRAM®. VYRAM® is particularly preferred. In another embodiment, a major portion of the top layer can be an ABS polymer blend. Where ABS is used in both the top and central layers, it is preferred that the amount of the polybutadiene phase in the top layer be greater than the amount of this phase in the central layer.

[0010] It is further preferred that a major portion of the bottom layer likewise be a thermoplastic elastomer, and conveniently it can be, but does not have to be, of the same composition as the major portion of the top layer.

[0011] Preferably one or more of the layers is actually a polymer blend, in which a minor portion is preselected for its coextrusion compatibility with the adjacent layer(s). Thus, a minor portion of the top and bottom layers can consist of a polyolefin, while a minor portion of the central layer can consist of a thermoplastic elastomer. In each case, it is preferred that the minor portion be no more than about one part in four by weight of each layer, or a weight ratio of 1:3. Where all three layers are preselected to be ABS blends, the amount of polybutadiene preferably is decreased in the central layer relative to the top and bottom layers.



[0012] While the preferred embodiment of the vehicle floor cover consists of three integral layers, any one of the recited layers can in fact be made up of two or more sublayers, such that the total number of sublayers in the resultant mat or tray can exceed three.

[0013] In another embodiment, the thermoplastic elastomer constituent of the top, central and/or bottom layers described above can be replaced with a natural or synthetic rubber, including styrene butadiene rubber, butadiene rubber, acrylonitrile butadiene rubber (NBR) or ethylene propylene rubber (EPDM).

[0014] According to a related aspect of the invention, a vehicle floor cover is provided that has three layers bonded together, preferably by coextrusion. Major portions of the top and bottom layer consist of thermoplastic elastomer(s). The top and bottom layers have compositions distinct from the central layer, which can be chosen for its relatively low expense. It is preferred that a major portion of the central layer be a polyolefin and that major portions of the top and bottom layers be one or more thermoplastic elastomers. The polyolefin may be selected from the group consisting of polypropylene and polyethylene, and preferably is a high molecular weight polyethylene (HMPE). The thermoplastic elastomer can, for example, be SANTOPRENE®, GEOLAST® or VYRAM®, with VYRAM® being particularly preferred. It is also preferred that each of the layers be a polymer blend, with a minor portion of each layer being chosen for its coextrusion compatibility with adjacent layers. For example, the top and bottom layers can consist of a 3:1 weight ratio of VYRAM®/HMPE, and the central layer of a 3:1 weight ratio of HMPE/VYRAM®.

[0015] In an embodiment alternative to the one above, the top and bottom layers can consist of ABS polymer blends and the central layer can consist of SAN or an ABS in which the polybutadiene phase is present in a smaller concentration than in the top and bottom layers.

[0016] In yet another embodiment, the thermoplastic elastomer recited in this aspect of the invention may be replaced with a natural or synthetic rubber, such as styrene butadiene rubber (SBR), butadiene rubber, acrylonitrile butadiene rubber (NBR) or ethylene propylene rubber (EPDM).

[0017] In a further aspect of the invention, a vehicle floor tray or mat according to the invention is made of three layers, wherein a top layer and a bottom layer have composition(s) distinct from the central layer, and wherein at least one of the shear strength per cross-sectional area, tensile strength per cross-sectional area and stiffness per cross-sectional area is greater than any one of the layers from which the tray or mat is composed. It has been found that a triextruded vehicle mat or floor tray according to the invention exhibits a tensile strength at yield, a tensile stress at break, a tensile modulus, a shear strength and a flexural modulus (stiffness) which are superior to either a polyolefin-dominated single extrusion or a thermoplastic elastomer-dominated single extrusion. The triextrusion tray demonstrates these enhanced physical properties while at the same time affording an enhanced coefficient of friction to the feet of the occupant and improved tactile properties. By presenting such a surface to the shoe of the driver or passenger, the footing of the driver or passenger will be more sure and comfortable.

[0018] In a further aspect of the invention, a vehicle foot well tray is provided as a part of a system that has the vehicle foot well as its other main component. The tray has a greatly enhanced conformance to the surface of the vehicle foot well for which it is provided. At least two upstanding walls of the tray, both extending from the tray floor to a top margin, conform to respective surfaces of the vehicle foot well such that at least within that one-third of the area of the outer surface of these upstanding walls of the tray which is adjacent the top margin, 90% of that top third area departs by no more than about one-eighth of an inch from

the foot well surfaces to which they mate. These upstanding tray surfaces may be opposed surfaces or adjacent surfaces, and preferably are both. In a preferred embodiment, the tray departs from a door sill surface of the vehicle foot well, and/or a sill curve of the vehicle foot well, by about 0.025 inches. The upstanding sidewalls of the floor tray conform to the foot well surfaces which they cover, even where such foot well surfaces present both concave and convex surface elements.

[0019] In a still further aspect of the invention, a top margin of a vehicle floor tray is substantially coplanar on at least two upstanding sidewalls thereof. Preferably, the top margin of the tray is substantially coplanar through three or even four continuous upstanding sidewalls. This eases the design of the floor tray, increases hoop strength and assures that all upstanding surfaces of the vehicle foot well will receive adequate protection from muddy footwear. In a particularly preferred embodiment, the plane of the top margin is forwardly and upwardly tilted relative to a horizontal floor. This provides enhanced protection to the vehicle foot well precisely in the place where muddy footwear are likely to be, near the accelerator, brake and clutch pedals or the firewall. In a preferred embodiment, the tray is at least five inches deep at its deepest part.

[0020] In a further aspect of the invention, the above mentioned tight tolerances are made possible by a novel vehicle floor tray manufacturing method. In a first step according to the invention, points on a surface of the vehicle foot well are digitally measured with a coordinate measuring machine (CMM). These points are stored in a computer memory. A foot well surface is generated which includes these points, preferably by connecting linear groups of the points together by using B-splines, and lofting between the B-splines to create areal portions of the foot well surface. Using this typically complex three-dimensional, predominately concave surface, which may have several concavely and convexly curved

portions, a corresponding substantially convex outer floor tray surface is built up such that in many regions, the distance between the outer surface of the tray and the surface of the foot well is no more than about one eighth of an inch, insuring a snug fit.

[0021] In one embodiment of the invention, a reservoir is incorporated into the tray floor as a collection and evaporation area for drip water from the feet and legs of the occupant. Combination baffles/treads are provided in the reservoir to impede lateral movement of the collected fluid. Longitudinal and transverse portions of these baffles are joined together. Channels are cut into another portion of the central area of the tray to direct fluid to the reservoir, such that the bottom of the channels is beneath a general tray floor surface but above the bottom of the reservoir. In a preferred driver's side embodiment, the channels are omitted from a portion of the floor tray upper surface to leave a blank space where the driver's heel will rest when operating the gas and brake pedals.

#### BRIEF DESCRIPTION OF THE DRAWINGS

[0022] Further aspects of the invention and their advantages can be discerned in the following detailed description, in which like characters denote like parts and in which:

[0023] FIGURE 1 is an isometric view of one embodiment of a vehicle floor tray according to the invention;

[0024] FIGURE 2 is a top view of the floor tray illustrated in FIGURE 1;

[0025] FIGURE 3 is an isometric and transverse sectional view of the floor tray seen in FIGURES 1 and 2, the section taken substantially along line 3 -3 of FIGURE 2;

[0026] FIGURE 4 is an isometric and longitudinal sectional view of the floor tray shown in FIGURES 1 and 2, the section taken substantially along line 4 - 4 of FIGURE 2;

[0027] FIGURE 5 is a side view of the tray illustrated in FIGURE 1, taken from the outer side;

[0028] FIGURE 6 is a highly magnified sectional view of a vehicle floor tray, showing triextruded layers;

[0029] FIGURE 7 is a schematic block diagram showing steps in a design and manufacturing process according to the invention; and

[0030] FIGURE 8 is an isometric and schematic view of a digitally acquired vehicle foot well floor surface from which the illustrated floor tray was made;

[0031] FIGURE 9 is a partly transverse sectional, partly isometric view of both the floor tray illustrated in FIGURE 2 and the vehicle foot well surface illustrated in FIGURE 8, taken substantially along line 9 – 9 of FIGURE 2 and substantially along line 9 - 9 of FIGURE 8;

[0032] FIGURE 10 is a partly transverse sectional, partly isometric view of both the floor tray illustrated in FIGURE 2 and the vehicle foot well surface illustrated in FIGURE 8, taken substantially along line 10 – 10 of FIGURE 2 and substantially along line 10 – 10 of FIGURE 8;

[0033] FIGURE 11 is a detail of a firewall region of FIGURE 10;

[0034] FIGURE 12 is a detail of a seat pedestal region of FIGURE 10;

[0035] FIGURE 13 is a partly longitudinal sectional, partly isometric view of both the floor tray illustrated in FIGURE 2 and the vehicle foot well surface illustrated in FIGURE 8, taken substantially along line 13 – 13 of FIGURE 2 and substantially along line 13 – 13 of FIGURE 8; and

[0036] FIGURE 14 is a detail of a kick plate region of FIGURE 13.

DETAILED DESCRIPTION

[0037] An isometric view of one commercial embodiment is shown in FIGURE 1. The illustrated vehicle floor tray indicated generally at 100 is preferably molded from a blank, in sheet form, of water-impervious thermoplastic polymer material having a uniform thickness, although the present invention could be fabricated from another process such as injection molding. The floor tray 100 is preferably formed of a triextruded thermoplastic material such that the properties of a central or core layer can be different than the properties of the external or jacket layers, and such that the triextrusion is tougher and stiffer per unit thickness than any of the layers from which it is made, as will be described in more detail below.

[0038] The vehicle floor tray or cover 100 is meant to protect both the floor and at least the lower sides of a vehicle foot well, and thus takes on a much more three-dimensional shape than is typical of prior art floor mats. The floor tray 100 includes a floor or central panel 102, which in the illustrated embodiment includes a plurality of fore-to-aft or longitudinal parallel straight channels 104 that are disposed in a forward region 106 of the floor panel 102. Preferably these channels are about an eighth of an inch deep so that they will correctly channel runoff, and can be about one-quarter of an inch wide. In FIGURE 1, forward is a direction to the upper left, while rearward is the direction to the lower right, and the terms are used in conformance with the orientation of the vehicle in which the tray is designed to be placed. As used herein, “longitudinal” means for-and-aft or along the axis of vehicle travel, while “transverse” means at a ninety degree angle to such an axis, or side-to-side.

[0039] A rearward or back region 108 of the floor panel 102 is largely occupied by a reservoir 110, whose bottom is made up by a substantially planar general surface 112.

General surface 112 is situated to be below a general surface 114 of the forward region 106. Preferably, the general bottom reservoir surface 112 is also below the bottommost points of the respective channels 104, as by about one-eighth of an inch, so that fluid in the channels 104 will empty into the reservoir 110.

[0040] The channels 104 are designed to channel liquid runoff from the user's feet or footwear to the reservoir 110. In many vehicles, the portion of the vehicle floor (not shown in this Figure; see FIGURES 8 - 11) which underlies the forward region 106 slopes from front to rear, and thus the tray 100, by simply conforming to the contour of the underlying vehicle floor portion, will channel fluid to the reservoir. For those vehicle designs in which the underlying vehicle floor is not pitched in this manner, the tray 100 can advantageously be designed to create this fluid flow, as by making the material thicker in portion 106 than in portion 108, or by giving the bottoms of channels 104 a front-to-rear slope.

[0041] The channels 104 occupy most of the forward region 106, although in this and other commercial embodiments a space 116 on the forward right hand side has been left open to receive the foot of the driver that operates the accelerator and brake pedals. In the illustrated embodiment, this space or clear area 116 is delimited by a 180 degree arc of a circle of about four inch radius (shown in dashed line). The clear area 116 is provided so that the relatively deep channels 104 do not catch the heel of the driver's shoe. In other embodiments, the clear area 116 can take other shapes or positions, so long as the heels of almost all drivers, while operating the brake and accelerator pedals of the vehicle for which the particular tray is designed, will rest within its confines.

[0042] The reservoir 110 has interspersed within it a plurality of tread surfaces or baffles 118, which have two purposes. The first purpose is to elevate the shoe or foot of the

occupant above any fluid which may have collected in the reservoir 110. The second purpose is to prevent this accumulated fluid from sloshing around. To this end, most of the tread surfaces/baffles 118 have both fore-to-aft or longitudinal portions 120 and side-to-side or transverse portions 122. This prevents large fluid movement in a forward or rearward direction, as would otherwise happen during acceleration or braking of the vehicle, and also large fluid movement side-to-side, as when the vehicle is turning. Preferably, each or at least most of the fore-to-aft portions 120 are joined to respective side-to-side portions. This further compartmentalizes and restricts the movement of collected fluid. Fluid in one portion of the reservoir 110 may make its way only slowly and through a complicated path to another distant portion of the reservoir 110, through channels 124 around the ends of the treads or baffles 118. The reservoir design thus creates a large surface area which promotes evaporation of the fluid, while at the same time restricts fluid movement prior to such evaporation.

[0043] Disposed around the central or floor panel 102 are a series of upstanding side panels, which will vary in number and configuration from one vehicle model to the next. In the illustrated embodiment these upstanding panels include a back panel 130 that is disposed adjacent the bottom of a vehicle front seat, or a vehicle pedestal for receiving same; an inner side panel 132 that closely fits a transmission tunnel or “hump” in this vehicle; a forward panel 134 that closely conforms to a vehicle firewall; and an outer side panel 136. In most embodiments, the outer side panel or kick plate panel 136 will only extend from its transition with panel 134 to a corner 138, at which point there begins a door sill curve 208 which transitions into a door sill panel 140. Unlike the other panels, the sill panel 140 is not generally upstanding but instead conforms to the sill of a vehicle door and lies in a substantially horizontal plane. In this way occupant ingress and egress is not occluded. In



many embodiments, including the illustrated embodiment, the sill panel 140 is at an elevation below that of the general surface 114 of the floor forward region 106 and even below the general surface (bottom) 112 of the reservoir 110. Very large amounts of fluid (in excess of the reservoir capacity) may therefore flow right out of the vehicle without having the opportunity to damage the vehicle interior. It should be noted that in these FIGURES, the lines dividing the panels are conceptual only and do not appear in the final part. As will be described in further detail below, the tray 100 preferably is integrally molded as a one-piece construction.

[0044] In one important aspect of the invention, the tray 100 is closely fitted to the vehicle foot well in which it is designed to be placed. Panels 130, 132, 134, 136 and 140 are all formed so as to as closely conform to the vehicle surfaces against which they are positioned, to an extent not found in prior art vehicle floor trays. In a preferred embodiment, at least throughout the top one-third of the areas of these panels that is adjacent a vehicle tray top margin 150, at least ninety percent of the points on the outer surface of the peripheral or side panels 130-136 are no more than about one-eighth of an inch from the corresponding points on the surfaces that they are formed to mate with. This close conformance occurs even where the underlying vehicular surface is complexly curved or angled. Certain portions of the vehicle foot well surface, such as kick plate transition plate 214, can have both convexly and concavely curved elements. The preferred tolerance of door sill curve 208 and sill plate 140 is even tighter, about 0.025 in.

[0045] The close conformance of the tray side panels to respective surfaces of the vehicle foot well produces a protective tray which will not be horizontally displaced under lateral forces created by the occupant's feet, or by the motion of the vehicle. Opposing pairs of the peripheral panels "nest" or "cage" the tray 100, preventing its lateral movement. Thus, outer

side panel or kick plate panel 136, which closely conforms to a vehicle side wall at that position, has as its counterpart a portion 142 of the inner side panel 132. Any tendency of the tray 100 to shift leftward is stopped by panel 136; any tendency of the tray 100 to shift rightward is stopped by panel portion 142. In a similar manner, the upstanding rearward and forward panels 130 and 134 cooperate to “cage” any forward or rearward motion of the tray 100 within the vehicle foot well.

[0046] The close conformance of the outer or lower surfaces of panels 130-136, 218, 140 to their respective mating surfaces of the vehicle foot well also increases the frictional force which will oppose any lateral movement. The result of this close conformance is to provide a floor tray which will not undesirably shift position, and which will provide a steady and sure rest to the feet of the occupants.

[0047] In most commercial embodiments of the vehicle floor tray 100, the side panels 130 – 136, 140 will not be formed to abruptly extend from the bottom panel 102, but rather will be joined to the bottom or central panel 102 through transitions. These transitions may be sloped or curved and will have a varying degree of gradualness. According to the invention, the transitions between the outer and bottom surfaces of the tray 100 conform wherever possible to underlying surfaces of the vehicle foot adjacent these transitions.

[0048] In FIGURE 2, for example, there is seen a large transition or subpanel 200 which extends from forward portion 106. A further subpanel 202 joins transitional subpanel 202 to the forward sidewall 134. Inner or transmission tunnel sidewall 132 is joined to the pan 102 through a curved transitional fillet 204. The rear upstanding panel 130 is joined to the rear portion of bottom panel 102 through a small transition 206. A transition or sill curve 208

between the outer sidewall 136 and the sill panel 140 takes the form of a gradual curved surface.

[0049] The present invention also employs (typically) curved transitions between adjacent side panels. For example, a curved transition 210 joins the back panel 130 to the inner side panel 132. A curved transition 212 joins the transmission tunnel or inner side panel 132 to the front or firewall panel 134. A transition 214, which in this embodiment takes the shape of an S-curve and conforms to a portion of vehicle wheel well, joins the front panel 134 to the outer side panel 136. The close conformance (preferably to a tolerance of about 1/8 in.) wherever possible to the transitions of the vehicle foot well surface by the outer surface of the tray 100 enhances a close fit.

[0050] In the illustrated embodiment, the tray according to the invention has been made by placing a sheet of substantially uniformly thick triextruded thermoplastic material into a mold and heating the mold. When this process is used, discrete layers having different characteristics can persist into the final product, as will be described in more detail below. On the other hand, as using this manufacturing process it is difficult to provide the channels and reservoir structure according to one aspect of the invention while closely conforming the bottom surface 300 (FIGURES 3 and 4) to a mating surface of the vehicle foot well. In this central area, and according to the preferred manufacturing process, a departure away from 1/8 in. tolerance must be made in order to obtain the above-described benefits of fluid flow and retention. But because the side panels 130 – 136, 140 and their associated transitions continue to closely conform to most of the remaining vehicle foot well surfaces, the tray 100 continues to be locked in one place.

[0051] FIGURES 10 – 14 superimpose a floor tray 100 on a surface 802 of a vehicle foot well for which the tray is designed according to the invention. In the part-isometric, part-longitudinal sectional view seen in FIGURE 10, It can be seen that on the section taken there is a quite tight conformance of the lower surface 300 of the tray 100 to the modeled surface 802 of the vehicle foot well. As best seen in FIGURE 11, the outer surface of the firewall sidewall 134 stays within one-eighth of an inch of the firewall surface 826 for at least three-quarters of the length of surface 826 as measured from the top margin 150 of the tray. In areas 1000, 1002 and 1004 (FIGURE 10), the modeled surface 802 of the vehicle foot well is actually above or to the interior to the tray 100. This negative interference is tolerable and in some instances is even desirable because the surface 802 is that of a vehicle carpet, which can or even should be depressed upon the installation of the tray 100 into the vehicle foot well. Such a tight fit is particularly desirable, for example, in the region of the tray around the accelerator pedal.

[0052] FIGURE 12 is a detail of FIGURE 10 in the area of the seat pedestal and a portion of the reservoir 110. Once again, there is a very tight conformance of the outer surface of the back panel 130 to the modeled seat pedestal surface 828 throughout most of its length on this section, well within 1/8 inch.

[0053] FIGURE 13 shows a side-to-side or transverse section taken in a relatively forward location, so as to cut through the kick plate tray and foot well surfaces 136, 830 on one side and the tray and foot well transmission tunnel surfaces 132, 810 on the other. As can be seen, tolerance to within 1/8 of an inch is maintained at least for the upper one-third of the surface area of these mating surfaces. Areas 1000, 1002 (partially represented in FIGURE 13) and 1006 are areas of negative standoff or interference in which the modeled surface 802 of the vehicle foot well is positioned interiorly of the vehicle tray 100. As above explained, this

mismatch is permissible if held to 1/8 inch or less, and is even desirable in some points, because the surface 802 is an image of vehicle carpeting rather than a hard surface.

[0054] In FIGURE 14, there is seen at 1400 an intentional increase of radius of the transition between kick plate panel 136 and bottom wall 102. This is done because, for the model shown, the foot well kick plate surface 830 is both vertical and is relatively deep. Therefore, sidewall 136 needs to have a draft of at least two degrees (and more preferably five degrees) relative to the surface 830 to insure that the wall of the tray 100 will remain acceptably thick enough at the junction of walls 136, 102. The increase of the radius 1400 accomplishes this. Nonetheless, even on this section the outer surface of the kick plate 136 stays within one-eighth of an inch of the kick plate surface 830 for at least one-third of the length, as measured from margin 150.

[0055] More generally, at least ninety percent of that top one-third of the surface area of each sidewall 130 – 136 that is adjacent the top margin 150 stays within 1/8 in. of the vehicle foot well surfaces with which they are designed to mate. Alternatively, ninety percent of the top one-half of the outer surface area of all upstanding sidewalls is within this 1/8 inch tolerance of respective foot well surfaces. In even a further alternative measurement of tolerance, it is preferred that at least fifty percent of the outer area of the upstanding sidewalls 130 – 136 be within 1/8 inch of the vehicle foot wells to which they correspond, regardless of position relative to the top margin 150.

[0056] As best seen in FIGURES 1, 5 and 10, a top margin 150 of the tray 100, which terminates all of the upstanding sidewalls 130, 132, 134, 136 and 138, substantially lies in a single plane which is tilted forwardly upwardly relative to the horizontal plane. The continuous nature of the top margin 150 means that the produced tray 100 has a higher hoop

strength, and better protects the vehicle carpeting from dirt or mud on the sides of the occupant's feet. The occupant's feet tend to occupy positions on the forward region 106, but the position of the top margin 150 around this region is high, being at least five inches removed from the floor of the tray at its greatest separation.

[0057] In a preferred embodiment, the top margin 150, the edge of sill curve 208 and the edge of sill panel 140 have a small (about 1/8 in.) radiused lip (not shown) which extends outwardly from the surface it terminates at approximately ninety degrees. Thus, there is a small horizontal outwardly extending lip which terminates margin 150. This lip is downwardly directed as forming the margin of sill plate 140, and forwardly or downwardly directed along the edge of sill curve 208. This lip adds structural rigidity without materially affecting closeness of fit; because most of the vehicle foot well surfaces are carpeted, the thin lip will merely "bite" into them and enhance the sealing of the edge of the tray to the foot well surface.

#### COMPOSITION

[0058] According to one aspect of the invention, it is preferred that the tray or cover 100 not be of uniform composition throughout, but rather be a laminate having at least three layers which are bonded together. A preferred composition of the tray 100 is shown in the highly magnified sectional detail shown in FIGURE 6. In this illustrated embodiment, the tray 100 consists of a top layer 600, a central or core layer 602, and a bottom layer 604. All three layers 600 – 604 preferably consist of one or more water-impervious thermoplastic polymers, but layers 600 and 604 have properties which are at least different from core layer 602 and may even have properties which are different from each other. The trilayer cover is shown to be a three-dimensional floor tray in the drawings, but can also be a more two-dimensional floor mat of more limited coverage. Top layer 600 is made from a material selected for its

tactile properties, its relatively high static and dynamic coefficients of friction with respect to typical footwear, and its resistance to chemical attack from road salt and other substances into which it may come into contact. Top layer 600 preferably includes a major portion of a thermoplastic elastomer such as VYRAM®, SANTOPRENE® or GEOLAST®, which are proprietary compositions available from Advanced Elastomer Systems. VYRAM® is preferred, particularly Grade 101-75 (indicating a Shore A hardness of 75). An upper surface 606 of the top layer 600 may be textured by a “haircell” pattern or the like so as to provide a pleasing tactile feel and visual appearance, as may a lower surface of the bottom layer 604.

[0059] It is preferred that top layer 600 be a polymer blend, in which instance a minor portion of the composition of the top layer 600 is selected for its coextrusion compatibility with core layer 602. A polyolefin polymer is preferred, such as polypropylene or more preferably polyethylene, even more particularly a high molecular weight polyethylene (HMPE). As used herein, HMPE is a commodity product, available from many sources, and distinguished in the industry from low density polyethylene (LDPE) and high density polyethylene (HDPE) by its approximate properties:

Characteristic	LDPE	HDPE	HMPE
Specific Gravity, ASTM D-792	0.918	0.96	0.95
Tensile Modulus, ASTM D-638, psi	22,500	95,000	125,000
Tensile Strength @ Yield, ASTM D-638, psi	1,800	4,500	3,600 – 3,700
Flexural Modulus, ASTM D-790, psi		225,000	165,000 – 175,000
Hardness, ASTM D-2240, Shore D	45	66	68

[0060] In the above table, the testing methods by which the properties are determined are given for the purpose of reproducibility.

[0061] Particularly where the thermoplastic elastomer and the polyolefin are respectively selected as VYRAM® and HMPE, the proportion by weight of the thermoplastic elastomer to polyolefin material in layer 600 is preferably selected to be about 3:1. It has been discovered

that some polyolefin material needs to be present in layer 600 for coextrusion compatibility with central layer 602, in the instance where a major portion of the layer 602 is also a polyolefin.

[0062] In an alternative embodiment, the thermoplastic elastomer component of the top layer 600 may be replaced with an elastomer such as natural rubber, acryl-nitrile butadiene rubber (NBR), styrene butadiene rubber (SBR), or ethylene propylene diene rubber (EPDM).

[0063] In a further alternative embodiment, layer 600 can be an acrylonitrile butadiene styrene (ABS) blend. ABS is a material in which submicroscopic particles of polybutadiene are dispersed in a phase of styrene acrylonitrile (SAN) copolymer. For layer 600, the percentage by weight of polybutadiene, which lends elastomeric properties to the material, should be chosen as relatively high.

[0064] The core or central layer 602 preferably is composed of a thermoplastic polymer material that is selected for its toughness, stiffness and inexpensiveness rather than its tactile or frictional properties. Preferably a major portion of it is a polyolefin such as polypropylene or polyethylene. More preferably, a major portion of the layer 602 is composed of HMPE as that material has been defined above.

[0065] It is preferred that the central layer 602 be a blend, and in that instance a minor portion of layer 602 is composed of a material selected for its coextrusion compatibility with top layer 600 (and bottom layer 604 described below). In the illustrated embodiment, this minor portion is a thermoplastic elastomer such as SANTOPRENE®, GEOLAST® or VYRAM®. VYRAM® Grade 101-75 is particularly preferred. For layer 602, and particularly where the polyolefin and the thermoplastic elastomer are respectively selected as HMPE and VYRAM®, the proportion by weight of polyolefin to thermoplastic elastomer is



preferred to be about 3:1. More generally, the percentages of the minor portions in layers 600 and 602 (and layer 604) are selected as being the minimum necessary for good coextrusion compatibility.

[0066] In an alternative embodiment, where layer 600 has been chosen as a polybutadiene-rich layer of ABS, layer 602 is chosen as a grade of ABS having less of a percentage by weight of polybutadiene in it, or none at all (effectively, styrene acrylonitrile copolymer or SAN).

[0067] Bottom layer 604 has a lower surface 300 which will be adjacent the vehicle foot well top surface. Typically, this surface is carpeted. The bottom layer 604 is a thermoplastic polymer material selected for its wear characteristics, as well as its sound-deadening qualities and a yieldability that allows the layer 604 to better grip “hard points” in the vehicle foot well surface as well as conform to foot well surface irregularities. Preferably, a major portion of the layer 604 is composed of a thermoplastic elastomer, such as SANTOPRENE®, GEOLAST® or, preferably, VYRAM®. VYRAM® Grade 101-75 is particularly preferred.

[0068] It is preferred that the bottom layer 604 be a polymer blend. In this instance, a minor portion of the bottom layer 604 is selected for its coextrusion compatibility with the core layer 602. Where core layer 602 is mostly made of a polyolefin material, it is preferred that a polyolefin be used as the minor portion of the bottom layer 604. This polyolefin can be, for example, polypropylene or polyethylene, and preferably is HMPE. The amount of the minor portion is selected to be that minimum amount that assures good coextrusion compatibility. Where the polyolefin and the thermoplastic elastomer are respectively chosen to be HMPE and VYRAM®, it has been found that the thermoplastic elastomer: polyolefin ratio by weight in the layer 604 should be about 3:1.

[0069] In an alternative embodiment, the thermoplastic elastomer component of layer 604 may be replaced with a rubber, such as natural rubber, NBR, SBR or EPDM.

[0070] In another alternative embodiment, where the central layer 602 has been selected as ABS or SAN, layer 604 can be selected as a grade of ABS which has a higher percentage by weight of polybutadiene in it than in central layer 602.

[0071] Bottom jacketing layer 604 conveniently can have the same composition as top jacketing layer 600, but the two jacketing layers do not have to be similar. What is important that, where the tray 100 is to be formed as a triextrusion (as is preferred), layers 600, 602 and 604 be sufficiently compatible that they can be triextruded as a single sheet.

[0072] It is preferred that most of the thickness of the tray 100 be made up by the core layer 602, which is used as the principal structural component of the tray 100. The core layer 602 has at least minimally acceptable tensile strength, shear strength and high flexural modulus, while at the same time being significantly less expensive than the thermoplastic elastomer-dominated jacketing layers. The jacketing layers 600 and 604 are selected to present good wear surfaces and to have a good resistance to chemical attack from substances such as road salt. Top layer 600 is selected to exhibit a relatively high coefficient of friction with respect to typical occupant footwear. The composition of bottom layer 604 is selected for its sound-deadening and yieldability qualities.

[0073] The total thickness of tray 100 is the sum of dimensions a, b and c. In the illustrated embodiment, jacketing layer thicknesses a and c are each about 12.5% of the total thickness, while core layer thickness b is about 75%. In one embodiment, the total thickness of the tray 100 (or, more precisely, of the blank sheet used to mold the tray 100) is approximately 0.120 inch. Of this, core layer 602 is about 0.09 inch, while jacketing layers 600 and 604 are each

about 0.0150 inch. In an alternative embodiment, the layer 600 can be made to be appreciably thicker than layer 604, as top surface 606 is a wear surface for the shoes of the occupant and will see more abrasive dirt and more wear than surface 300 in typical applications. In another alternative embodiment, the thickness of layer 604 may be increased, allowing it to even better conform to the vehicle foot well surface with which it is designed to mate and to increase sound-deadening.

[0074] The illustrated embodiment is a triextrusion of three layers 600 – 604. In alternative embodiments, any or all of the layers 600 – 604 may be composed of sublayers. A manufacturer may want to do this, for example, to gradually phase in one material in substitution for another material as one moves from the center of the tray thickness to either or both surfaces 300, 606. A manufacturer also may want to include several sublayers to ease compatibility problems with a core layer on the one hand and the external layer(s) on the other, intervening layers acting as “buffer” layers that are compatible with the core and external layers, even where the core and external layers are not compatible with each other. [Question as to whether this suggestion should be saved for a future patent application]

[0075] A preferred embodiment of the present invention combines the high coefficient of friction, tactile qualities, sound-deadening and yieldability obtainable with a thermoplastic elastomer with the modest cost of a polyolefin. To demonstrate the technical advantages of a triextrusion tray over monoextruded prior art structures, tests measuring tensile strength, shear strength, flexural modulus and coefficient of friction were performed on (1) a triextrusion sheet material made and used according to the invention, (2) a monoextruded sheet of 75 wt. pct. VYRAM®/ 25 wt. pct. HMPE, and (3) a monoextruded sheet of wt. pct. VYRAM® / 75 wt. pct. HMPE. The particular tests and their results are described below.

[0076] The first two tests performed concern static and dynamic coefficients of friction.

Example 1

[0077] These tests determined static and kinetic coefficients of friction of a sheet of triextrusion material with respect to an object meant to emulate an typical occupant shoe outsole. This “shoe” was composed of Shore A Durometer 60 neoprene rubber, formed as a “sled” measuring 2.5 in. x 2.5 in. x 0.238 in. The “shoes” were drawn across an upper, textured surface of a .120 in. triextrusion sheet formed according to a preferred embodiment of the invention measuring 4 in. x 12 in. according to the procedure set forth in ASTM D 1894-01. The triextrusion sheet had, as its top layer, a blend of 75 wt. pct. VYRAM® Grade 101-75/25 wt. pct. HMPE. The core layer was 75 wt. pct. HMPE/25 wt. pct. VYRAM® Grade 101-75. The bottom layer was a blend of 25 wt. pct. HMPE/75 wt. pct. VYRAM® Grade 101-75. The bottom and top layers each comprised about 12.5% of the sheet thickness while the middle core layer comprised about 75% of the sheet thickness. Results are tabulated as follows.

Test Number	Static Load (g)	Sled Weight (g)	Static Coefficient of Friction	Kinetic Load (g)	Sled Weight (g)	Kinetic Coefficient of Friction
1	166	199.9	0.830	189	199.9	0.945
2	155	199.9	0.775	166	199.9	0.830
3	171	200.0	0.855	179	200.0	0.895
4	145	199.9	0.725	160	199.9	0.800
5	150	199.9	0.750	163	199.9	0.815
Average			0.787			0.857
Std. Dev.			0.054			0.061

Example 2

[0078] Five neoprene rubber “sleds” fabricated as above were drawn across a 4 in. x 12 in. sheet of a single-extrusion 75 wt. pct. HMPE/25 wt. pct. VYRAM® Grade 101-75, according to ASTM D 1894-01. Results are tabulated below.

Test Number	Static Load (g)	Sled Weight (g)	Static Coefficient of Friction	Kinetic Load (g)	Sled Weight (g)	Kinetic Coefficient of Friction
1	157	200.1	0.785	162	200.1	0.810
2	151	200.0	0.755	148	200.0	0.740
3	163	200.1	0.815	170	200.0	0.850
4	146	200.1	0.730	148	200.1	0.740
5	154	200.1	0.770	155	200.1	0.775
Average			0.771			0.783
Std. Dev.			0.032			0.047

[0079] The above tests show that with respect to a typical shoe sole composition, a material consisting mostly of a thermoplastic elastomer like VYRAM® exhibits a higher coefficient of friction than a material consisting mostly of a high molecular weight polyolefin.

Example 3

[0080] These tests compared the tensile strength of a sheet of triextruded material as above described with a sheet of single-extruded blend of material consisting of 75 wt. pct. VYRAM®, Grade 101-75, and 25 wt. pct. HMPE, and further with a sheet of a single-extruded blend of material of 75 wt. pct. HMPE and 25 wt. pct. VYRAM® Grade 101-75. The tested single-extruded VYRAM®-dominated sheet was approximately .070 in. thick, while the HMPE-dominated sheet was approximately .137 in. thick. The triextrusion sheet was about .120 in. thick. The triextrusion sheet, the single-extruded VYRAM®-dominated sheet and the single-extruded HMPE-dominated sheet were die-cut into samples having an average width of 0.250". The test performed was according to the ASTM D 638-03 testing standard. A cross-head speed of 20 in. / min. was used. The extensometer was set at 1000% based on 1.0" gauge length. Samples were conditioned at 40 hours at 23 Celsius and 50% relative humidity prior to testing at these conditions. Test results are tabulated below.

	Test Number	Tensile Strength at Yield (psi)	Elongation at Yield (%)	Tensile Stress at Break (psi)	Elongation at Break (%)	Tensile Modulus (Youngs) (psi)
<b>Tri-Extrusion</b>	1	1680	24	1530	730	30800
	2	1710	21	1610	710	30100
	3	1700	21	1620	730	32200
	4	1740	19	1660	770	32700
	5	1690	17	1630	700	24400
	Average	1700	20	1610	730	30000
	Std.Dev.	23	3	48	27	3320
<b>75%Vyram/ 25%HMPE</b>	1	1040	53	1400	620	15900
	2	1010	45	1430	630	17100
	3	1050	98	1390	640	17100
	4	1010	62	1430	620	16700
	5	1030	88	1420	610	17100
	Average	1030	69	1410	620	16800
	Std.Dev.	18	23	18	11	522
<b>75%HMPE/ 25%Vyram</b>	1	919	63	1130	630	30200
	2	914	61	1110	630	34100
	3	925	69	1120	650	29500
	4	910	67	1110	650	21500
	5	912	68	1140	700	24000
	Average	916	66	1120	650	27900
	Std.Dev.	6	3	13	29	5060

[0081] The above data demonstrate that a triextrusion material according to the invention exhibits markedly greater tensile strength than a thermoplastic elastomer-dominated single-extrusion material. Also of interest is that the three-layer laminate exhibited a higher strength at yield and stress at break than the HMPE-dominated material, while showing a comparable tensile Young's modulus.

Example 4

[0082] Tests were performed on the above three materials for shear strength according to Test Standard ASTM D732-02. In these tests, a 1.00 in. dia. punch was applied to a 2.0 inch square of material until shear was achieved. The crosshead moved at 0.05 in/min. The test

samples were preconditioned for at least 40 hours at 23 Celsius and 50% relative humidity, which were the conditions under which the tests were performed. Test results are tabulated below.

Sample Name	Test Number	Thickness (in.)	Shear Force (lbf)	Shear Strength (psi)
<b>Tri-Extrusion</b>	1	0.119	747	2000
	2	0.122	783	2040
	3	0.119	747	2000
	4	0.121	757	1990
	5	0.117	734	2000
	Average		754	2010
	Std. Dev.		18	19
<b>75% VYRAM/ 25% HMPE</b>	1	0.072	423	1870
	2	0.070	416	1890
	3	0.073	489	2130
	4	0.072	481	2130
	5	0.073	455	1980
	Average		453	2000
	Std. Dev.		33	126
<b>75% HMPE/ 25% VYRAM</b>	1	0.135	680	1600
	2	0.137	688	1600
	3	0.134	687	1630
	4	0.136	724	1690
	5	0.137	687	1600
	Average		693	1620
	Std. Dev.		18	39

[0083] The above test data show that, as normalized for the different thicknesses tested, the triextrusion material is similar in shear strength to the 75%VYRAM/ 25% HMPE single-extrusion blend, and superior in shear strength to the 75%HMPE/25%VYRAM® single-extrusion blend.

Example 5

[0084] Tests were performed to determine the flexural properties of samples of a tri-extrusion material of the above-described formulation, a 75 wt. pct. Vyram/25 wt. pct. HMPE material, and a 75 wt. pct. HMPE/25wt. pct. VYRAM material (in all tests. the thermoplastic elastomer

used was VYRAM® Grade 101-75). The tests were performed according to the ASTM D790-03 test method, Method I, Procedure A. For the tri-extrusion the dimensions of the samples averaged 0.490" x 0.0119" x 5.00", the span length was 1.904 in., and the cross-head speed was 0.051 in./min. For the 75%Vyram/25%HMPE material, the dimensions of the samples averaged 0.484" x 0.072" x 5.00", the span length was 1.152 in., and the cross-head speed was 0.031 in./min. For the 75%HMPE/25%Vyram material, the dimensions of the samples averaged 0.50" x 0.138" x 5.00", the span length was 2.208 in., and the cross-head speed was 0.059 in./min. In all tests, the span-to-depth ratio was 16 +/- 1:1, the radius of the supports was 0.197 in., and the radius of the loading nose was 0.197 in. The tests were performed at 23 Celsius and 50% relative humidity and the samples conditioned for 40 hours at this temperature and humidity before the tests were performed. Results are tabulated below.



Sample Name	Test Number	Flexural Stress At 5% Deflection (psi)	Flexural Modulus (tangent*)(psi)
<b>Triextrusion</b>	1	294	33400
	2	317	36000
	3	304	33500
	4	318	35700
	5	305	33200
	Average	308	34400
	Std. Dev.		
<b>75%Vyram/ 25%HMPE</b>	1	234	15400
	2	238	16400
	3	230	14500
	4	225	14300
	5	228	14300
	Average	231	15000
	Std. Dev.	5	915
<b>75%HMPE/ 25%Vyram</b>	1	508	13000
	2	505	13800
	3	496	13100
	4	497	12900
	5	518	13800
	Average	505	13300
	Std. Dev.	9	444

[0085] The asterisk in the table indicates that the reported values were arrived at by computer generated curve fit. These data show that the triextrusion is significantly stiffer than either monoextruded sheet. Overall, the triextrusion demonstrates superior properties in terms of tensile strength, shear strength and stiffness per unit cross-sectional area in comparison with that of any of the layers of materials from which the laminate is made, demonstrating that a triextruded tray or mat will be tougher and stiffer than one made of either monoextruded blend by itself.

## PROCESS

[0086] FIGURES 7 and 8 provide an overview of a process for making the vehicle floor trays or covers according to the invention. The vehicle floor trays and covers are custom-fabricated for discrete vehicle models. At step 700, points on the vehicle foot well for which the floor tray is to be manufactured are digitally measured and captured. Preferably this step uses a coordinate measuring machine (CMM) which records each of a large plurality of points on the surface of the vehicle foot well to which the floor tray is to be fitted. The inventor has found that a FARO® Arm has been efficacious in obtaining these data using a contact method. It has been found that laying out points in linear groups, as by marking the locations to be measured on tape prior to measurement, is efficacious in capturing enough data points to later recreate the surface of which they are a part.

[0087] The data thus collected are stored in a file. The points of surface data are spaced from each other as a function of the complexity of the surface on which they reside. Few points of data are needed to establish large surface planes. More points of data are used in defining curved surfaces, with the density of data points varying according to the sharpness of the curve. In FIGURE 8, representative ones of these points are shown by small “x”s at 800, on a surface 802 that is reconstituted using the technique described immediately below. A typical data file will contain about a thousand points, spread over an imaged foot well surface area of about ten square feet.

[0088] The CMM data file is imported into a CAD program, which is used by a designer to reconstitute a vehicle foot well surface from the captured points. First, at step 701 different “lines” of these points are connected together by B-splines 804. The splines 804, which the CAD program can automatically generate, are used to estimate all of the points on the line

other than the captured data points of that line. The splines 804 are separated apart from each other as a function of the topographical complexity of the portion of the surface that they cover. For large flat areas, such as sill plate 806, the splines 804 may be separated far apart, as a plane between the splines is a good estimate of the surface in that area. For complex or tightly curved areas, such as sill curve 832 or kick plate transitional area 833, the splines 804 are tightly packed together because the surface segments have to be small in order to reproduce those curved surfaces of the foot well with acceptable accuracy.

[0089] Once the splines 804 have been assembled, the designer lofts an area between each pair of parallel splines 804 in order to create different areal segments 808. The “lofting” process proceeds along each of the major surfaces of the part, piecewise, until that surface is entirely recreated. For example, a transmission tunnel sidewall surface 810 is recreated by lofting an area 812 between a spline 814 to an adjacent spline 816 along the same surface. The designer then lofts the next area 818 from spline 816 to spline 820. Next, an area 822 from spline 820 to spline 824 is added, and so forth down the rest of the transmission tunnel surface 810 until that entire component of the vehicle foot well surface has been created. In similar fashion, the other major surfaces are added: a combination firewall/floor area segment 826, a pedestal sidewall 828, a kick plate segment 830, a sill plate curve 832 and the sill plate 806.

[0090] The resultant reconstructed vehicle foot well surface 802 is used, at steps 703 – 707, 709, 711, to construct a vehicle floor tray that fits the surface 802 to an enhanced degree of precision. At step 703, the designer chooses top and bottom sketch planes, which intersect the surface 802 at the top and bottom elevations of the tray to be designed. A top sketch plane intersects surface 802 at a locus high up on the sidewalls 810, 828, 830, 832 and 834. This locus is seen in FIGURE 1 as a top margin 150 of the upstanding sidewalls 130, 132,

134, 136 and the transitions between them. In the preferred embodiment, the top sketch plane is tilted and inclines upward in a forward direction. This produces a tray which is deeper near the firewall than it is near the seat, preferably producing a tray that is at least five inches deep at its deepest part. This protects the foot well carpet from the possibly muddy sides of an occupant's shoes or boots. A bottom sketch plane is defined to be coplanar with the bottom surface tray sill plate 140, spaced from the vehicle foot well sill plate 806 by a tight tolerance, such as 0.025". This bottom sketch plane does not intersect the remainder of the structure but is instead projected upward onto the vehicle foot well surface to create a locus that approximates the marginal outline of the floor/firewall segment 826.

[0091] At step 704, sidewalls are drawn in to span the top and bottom sketch planes. These prototypical sidewalls are created by first drawing a plurality of straight lines, each drawn from a point on the upper sketch plane locus to a point on the lower sketch plane locus. Since the upper sketch plane is more extensive and has a different shape from the lower sketch plane, the lateral margins of the upper and lower sketch planes are not congruent, and the straight lines drawn from the upper sketch plane may be canted at various angles to each other. In general, these lines will slope inwardly from the top sketch plane to the bottom sketch plane. The areas in between these lines can be lofted to create polygonal surfaces of a completed tray solid.

[0092] The resultant solid has a planar top surface, nearly planar bottom surface and sidewalls which make abrupt corners with them. The actual transitions between the vehicle foot well sidewall surfaces and the floor are almost always curved, to a greater or lesser extent depending on the area in question and on the vehicle model. Therefore, at step 705, curves are fitted to the reconstructed vehicle foot well surface and these curves are substituted in for the previous abrupt angular shapes. The largest of these curves occurs across the

firewall 834, to conform to that sloping and typically curved surface rather than to a horizontal extension of the bottom sketch plane. Curves are also used to modify the transitions between the floor 102 and the transmission tunnel surface 132, the kick plate 136, and the seat pedestal sidewall 130.

[0093] The above techniques aim to approximate, as closely as possible, the shape of the upstanding sidewalls 810, 828, 830 and 834, to a zero standoff from the foot well surface. In some instances, the outer surface of the tray 100 may actually extend slightly beyond the imaged side walls of the vehicle foot well (see portions 1000 – 1006 in FIGURES 10 – 14), creating a negative standoff. This is permissible to some degree because the surface to which the tray is being shaped is carpeted and the pile may be intentionally depressed at certain points.

[0094] The door sill 806 and the sill curve 832 typically are hard surfaces that must comply to close manufacturer tolerances. A vehicle door is designed to mate with these surfaces. Because of this it is important to match these surfaces carefully, and preferably this is done in this process to a preselected standoff of 0.025 inch.

[0095] At step 704, and for certain vehicle models, certain radii of the transitional surfaces are increased, in an intentional departure from the foot well surface. This is done, for example, where the curved transition is one from a deep vertical surface to the floor, as might occur between a vertical kick plate and firewall surface segments 836, 838. See transition 1400 in FIGURE 14. This is done to make sure that the preferred vacuum molding process, which uses a female tool, does not create a thin place in the molded part at the deep corners. Where the sidewall surfaces are sloped inward by more than five degrees, such radiusing is unnecessary.

[0096] At step 707, which can be before, during or after steps 704 and 705, the tray solid is additionally modified to take into account irregularities in the reconstructed foot well surface. For example, the vehicle carpeting might have had rolls or wrinkles in it that should not be reproduced in a tray meant to fit the vehicle. This steps also smoothes out those surface irregularities which are artifacts of the surface acquisition and reconstruction steps 700 – 702.

[0097] Once a basic shape for the vehicle floor tray has been formed, it is modified at 709 in order to create the reservoir 110 and channels 104 (See Figures 1 – 4). This modification is necessary because, as has been explained, while there is a close conformance or mating between most of the exterior or lower surfaces of the floor tray on the one hand to the upper or interior surfaces of the vehicle foot well surfaces on the other, there must be a departure from this close conformance in order to create the profile needed by the reservoir and channels. In a preferred embodiment, a predetermined file containing the outer surface of the reservoir and channel surface is integrated into the floor of the tray solid. The importation of this design into the floor of the tray solid will cause a departure from the imaged vehicle surface floor of as much as ¼ inch in the areas around the reservoir periphery. This departure decreases as a function of distance from the imported pattern. The produced vehicle floor tray will nonetheless fit tightly to the vehicle foot well, because (1) the floor carpeting will be depressed to a greater extent under the reservoir than in peripheral areas (see, e.g., region 1004 in FIGURE 10), and (2) the upstanding sidewalls continue to closely conform to the corresponding surfaces of the vehicle foot well.

[0098] At step 711, the tray solid developed at steps 703 – 707, 709 is “shelled”. This means that the solid is carved out to leave a thin layer that is a uniform thickness (preferably about .120 - .125 in.) from the outer surface.

[0099] The result is a tray data file 708 that is a complete representation of both the upper and lower surfaces of the floor tray, to a precision sufficient to create only a 1/8 in. departure or less from a large portion of the respective surfaces of the vehicle foot well. This data file, typically as translated into a .stl format that approximates surfaces with a large plurality of small triangles, is used at 710 to command a stereolithographic apparatus (SLA). The SLA creates a solid plastic image or model of the design by selectively curing liquid photopolymer using a laser. The SLA is used to determine fit to an actual vehicle foot well and to make any necessary adjustments.

[0100] As modified with experience gained from fitting the SLA, at 712 the vehicle tray data file is used to make a commercial mold for producing the vehicle floor trays or covers. Triextruded sheets or blanks 714 are placed in the mold and heated to produce the vehicle floor trays at 716.

[0101] Three-dimensional vehicle floor trays for many different vehicle models can be quickly and accurately manufactured using this method. The method can also be modified to produce double trays, in which a single tray is provided which covers both driver and passenger vehicle foot wells as well as the intervening transmission tunnel. The technique can be used to create other vehicle floor covers as well, such as the liners used in the cargo areas of minivans and SUVs.

[0102] In summary, a novel vehicle floor tray has been shown and described which fits, within tight tolerances, to the vehicle foot well for which it is created. The floor tray according to the invention includes a reservoir and channel system for retaining runoff in a way that will not slosh around in the foot well. By using a triextruded sheet blank, the tray combines the desirable coefficient of friction and yieldability characteristics of a

thermoplastic elastomer, the lower cost of a polyolefin and a toughness that exceeds either material taken alone.

[0103] While an illustrated embodiment of the present invention has been described and illustrated in the appended drawings, the present invention is not limited thereto but only by the scope and spirit of the appended claims.



**I CLAIM:**

1. A vehicle floor cover, comprising:  
a thermoplastic polymer central layer having a top surface and a bottom surface;  
a thermoplastic polymer top layer bonded to the top surface of the central layer and having a composition different from the central layer, a top surface of the top layer exhibiting a kinetic coefficient of friction of at least about 0.82 with respect to neoprene rubber having a Shore A durometer reading of 60; and  
a thermoplastic polymer bottom layer bonded to the bottom surface of the central layer and having a composition different from the central layer.
2. The cover of Claim 1, wherein a major portion of the central layer is composed of a polyolefin.
3. The cover of Claim 2, wherein said major portion of the central layer is selected from the group consisting of polyethylene and polypropylene.
4. The cover of Claim 3, wherein said major portion is high molecular weight polyethylene (HMPE).
5. The cover of Claim 2, wherein the central layer is composed of a polymer blend, a minor portion of the blend consisting of a thermoplastic elastomer.

6. The cover of Claim 2, wherein the central layer is composed of a polymer blend, a minor portion of the blend preselected for its coextrusion compatibility with the top and bottom layers.

7. The cover of Claim 5, wherein in the central layer, the weight ratio of the polyolefin to the thermoplastic elastomer is about 3:1.

8. The cover of Claim 5, wherein the thermoplastic elastomer is selected from the group consisting of SANTOPRENE®, GEOLAST® and VYRAM®

9. The cover of Claim 1, wherein a major portion of the top layer is composed of a thermoplastic elastomer.

10. The cover of Claim 9, wherein said thermoplastic elastomer is selected from the group consisting of SANTOPRENE®, GEOLAST® and VYRAM®.

11. The cover of Claim 9, wherein the top layer is composed of a polymer blend including a minor portion of a polyolefin.

12. The cover of Claim 11, wherein the polyolefin is selected from the group consisting of polypropylene and polyethylene.

13. The cover of Claim 12, wherein the polyolefin consists of high molecular weight polyethylene (HMPE).

14. The cover of Claim 9, wherein top layer is composed of a polymer blend which includes a minor portion of a polymer preselected for its coextrusion compatibility with the central layer.

15. The cover of Claim 1, wherein a major portion of the bottom layer is formed of a thermoplastic elastomer.

16. The cover of Claim 15, wherein the thermoplastic elastomer is selected from the group consisting of SANTOPRENE®, GEOLAST® and VYRAM®.

17. The cover of Claim 15, wherein the bottom layer is a polymer blend, a minor portion of the polymer blend consisting of a polyolefin.

18. The cover of Claim 17, wherein the polyolefin is selected from the group consisting of polypropylene and polyethylene.

19. The cover of Claim 18, wherein the polyolefin consists of high molecular weight polyethylene (HMPE).

20. The cover of Claim 17, wherein in the bottom layer, the weight ratio between the thermoplastic elastomer and the polyolefin is about 3:1.

21. The cover of Claim 17, wherein a minor portion of the polymer blend is preselected for its coextrusion compatibility with the central layer.

22. The cover of Claim 1, wherein the cover is either a vehicle floor mat or a vehicle floor tray.

23. The cover of Claim 1, wherein one or more of the shear strength per cross sectional area, tensile strength per cross sectional area and stiffness per cross sectional area if of the cover is greater than that of any of the top, central and bottom layers taken alone.

24. The cover of Claim 1, wherein the central layer is selected from the group consisting of acrylonitrile butadiene styrene copolymer blend (ABS) and styrene acrylonitrile copolymer (SAN), and wherein the top and bottom layers comprise ABS having an amount by weight of polybutadiene which is greater than the amount by weight of polybutadiene in the central layer.

25. A vehicle floor cover, comprising:  
a thermoplastic polymer central layer having a top surface and a bottom surface;  
a thermoplastic polymer top layer having a composition different from the central layer and bonded to the top surface of the central layer, a major portion of the top layer being composed of a thermoplastic elastomer; and  
a thermoplastic polymer bottom layer having a composition different from the central layer and bonded to the bottom surface of the central layer, a major portion of the bottom layer being composed of a thermoplastic elastomer.

26. The floor cover of Claim 25, wherein a major portion of the central layer is a polyolefin.

27. The floor cover of Claim 26, wherein the polyolefin is selected from the group consisting of polyethylene and polypropylene.

28. The floor cover of Claim 27, wherein the major portion of the central layer consists of high molecular weight polyethylene (HMPE).

29. The floor cover of Claim 25, wherein the central layer is a polymer blend, a minor portion of the blend consisting of a thermoplastic elastomer.

30. The floor cover of Claim 29, wherein the thermoplastic elastomer is selected from the group consisting of SANTOPRENE®, GEOLAST® and VYRAM®.

31. The floor cover of Claim 29, wherein in the central layer, the weight ratio of polyolefin to thermoplastic elastomer is about 3:1.

32. The floor cover of Claim 25, wherein the central layer is a polymer blend, a minor portion of the central layer preselected for its coextrusion compatibility with the top layer and the bottom layer.

33. The floor cover of Claim 25, wherein the major portion of the top layer is a thermoplastic elastomer selected from the group consisting of SANTOPRENE®, GEOLAST® and VYRAM®.

34. The floor cover of Claim 25, wherein the top layer is a polymer blend, a minor portion of the blend consisting of a polyolefin.

35. The floor cover of Claim 34, wherein the polyolefin is selected from the group consisting of polypropylene and polyethylene.

36. The floor cover of Claim 35, wherein the polyolefin is high molecular weight polyethylene (HMPE).

37. The floor cover of Claim 34, wherein in the top layer, the ratio by weight of the thermoplastic elastomer to the polyolefin is about 3:1.

38. The floor cover of Claim 25, wherein the major portion of the bottom layer is a thermoplastic elastomer selected from the group consisting of SANTOPRENE®, GEOLAST® and VYRAM®.

39. The floor cover of Claim 25, wherein the bottom layer is a polymer blend, a minor portion of the bottom layer consisting of a polyolefin.

40. The floor cover of Claim 39, wherein the polyolefin is selected from the group consisting of polypropylene and polyethylene.

41. The floor cover of Claim 40, wherein the polyolefin is high molecular weight polyethylene (HMPE).

42. The floor cover of Claim 39, wherein in the bottom layer, the weight ratio of the thermoplastic elastomer to the polyolefin is about 3:1.

43. The floor cover of Claim 38, wherein the bottom layer is a polymer blend, a minor portion of the bottom layer preselected for its coextrusion compatibility with the central layer.

44. The floor cover of Claim 25, wherein the floor cover is a vehicle floor mat or a vehicle floor tray.

45. The floor cover of Claim 25, wherein one or more of the shear strength per cross-sectional area, tensile strength per cross-sectional area and stiffness per cross-sectional area of the floor cover is greater than that of any of the layers from which the floor cover is composed.

46. The floor cover of Claim 25, wherein the central layer is comprised of a material selected from the group consisting of acrylonitrile butadiene styrene copolymer (ABS) and styrene acrylonitrile copolymer (SAN), and wherein the top and bottom layers are comprised of a grade of ABS where the percentage by weight of polybutadiene is greater than the percentage by weight of the polybutadiene in the central layer.

47. A system including a vehicle and a removable tray for a foot well of the vehicle, comprising:

a vehicle foot well having a surface including a floor, an upstanding generally longitudinal first wall extending upward from the floor, an upstanding generally transverse

second wall extending from the floor and substantially formed at an angle to the first wall;  
and

a tray for fitting into the vehicle foot well, a floor of the tray approximately conforming to the floor of the foot well, an upstanding generally longitudinally oriented first wall of the tray integrally formed with and extending from the floor of the tray and substantially conforming to said first wall of the vehicle foot well, an upstanding generally transversely oriented second wall of the tray extending from the floor of the tray and substantially conforming to said second wall of the vehicle foot well;

the first and second upstanding walls of the tray each having a top margin and an outer surface facing a respective wall of the vehicle foot well, for each said upstanding wall of the tray, at least ninety percent of at least that one-third of an area of the outer surface of the tray wall which is adjacent the top margin of the tray wall being no more than one-eighth of an inch from the surface of a respective wall of the vehicle foot well.

48. The system of Claim 47, wherein the vehicle foot well has a third generally transversely oriented wall extending from the floor of the vehicle foot well and having a surface, and wherein the tray further includes a third generally transversely oriented wall extending from the floor of the tray, the third wall of the tray having a top margin and an outside surface facing the third wall of the vehicle foot well, at least ninety percent of that one-third of an area of the outer surface which is adjacent the top margin of the tray wall being no more than one-eighth of an inch from the surface of the third wall of the vehicle foot well.

49. The system of Claim 47, wherein a depth of said first wall of the tray as measured from the top margin to the floor is at least five inches at its deepest part.



50. The system of Claim 47, wherein the outside surface of the first wall of the tray faces a transmission tunnel of the vehicle.

51. The system of Claim 47, wherein the outside surface of the first wall of the tray faces a kick plate of the vehicle foot well.

52. The system of Claim 47, wherein the outside surface of the second wall of the tray faces a firewall of the vehicle foot well.

53. The system of Claim 47, wherein the outside surface of the second wall of the tray faces a seat pedestal of the vehicle foot well or a surface of a vehicle seat.

54. The system of Claim 47, wherein at least one of the vehicle foot well surfaces is a curved surface, an outside surface of a respective upstanding wall of the tray being a conforming curved surface.

55. The system of Claim 54, wherein each of said curved surfaces contain both concave and convex curves.

56. The system of Claim 47, wherein the vehicle foot well includes a substantially horizontally disposed door sill plate surface, the vehicle tray including a mating sill plate wall, a lower surface of the vehicle tray sill plate wall being no more than about 0.025 inch from the door sill plate surface.

57. The system of Claim 47, wherein the vehicle foot well includes a door sill curve surface which curves forwardly from a substantially horizontal position to a substantially upstanding position, the vehicle tray including a mating sill curve wall, an outer surface of the sill curve wall of the tray being no more than about 0.025 inch from the door sill curve surface.

58. A system including a vehicle and a tray for removable installation into a foot well of the vehicle, comprising:

a vehicle foot well surface including a floor, at least one upstanding generally longitudinal first wall extending from the floor, and at least one upstanding generally longitudinal second wall extending from the floor, the second wall spaced from the first wall by the floor; and

a tray for removable installation into the vehicle foot well, a floor of the tray approximately conforming to the floor of the foot well, an upstanding generally longitudinally oriented first wall of the tray integrally formed with and extending from the floor of the tray and having a first outer surface facing said first wall of the vehicle foot well surface, an upstanding generally longitudinally oriented second wall of the tray extending from the floor of the tray and having a second outer surface facing the second wall of the vehicle foot well, each of the first and second walls of the tray having a top margin, at least ninety percent of that one-third of the area of the outer surfaces of the first and second walls which are adjacent the top margin being no more than one-eighth of an inch from respective walls of the vehicle foot well.

59. The system of Claim 58, wherein a depth of said first wall of the tray as measured from the top margin to the floor is at least five inches at its deepest part.

60. The system of Claim 58, wherein the outside surface of the first wall of the tray faces a transmission tunnel of the vehicle.

61. The system of Claim 58, wherein the outside surface of the first wall of the tray faces a firewall of the vehicle foot well.

62. The system of Claim 58, wherein at least one of said vehicle foot well walls has a curved surface, an outside surface of a respective upstanding wall of the tray being a conforming curved surface.

63. The system of Claim 62, wherein at least one curved surface of said vehicle foot well walls contains both concave and convex curves.

64. The system of Claim 58, wherein the vehicle foot well includes a substantially horizontally disposed door sill plate surface, the vehicle tray including a mating sill plate wall, a lower surface of the vehicle tray sill plate wall being no more than about 0.025 inch from the door sill plate surface.

65. The system of Claim 58, wherein the vehicle foot well includes a door sill curve surface which curves forwardly from a substantially horizontal position to a substantially upstanding position, the vehicle tray including a mating sill curve wall, an outer

surface of the sill curve wall of the tray being no more than about 0.025 inch from the door sill curve surface.

66. The system of Claim 58, wherein the vehicle foot well surface has an upstanding third wall formed to be substantially at an angle to the first and second walls of the vehicle foot well and an upstanding fourth wall formed to be substantially at an angle to the first and second walls of the vehicle foot well, an upstanding third wall of the tray extending from the floor of the tray and an upstanding fourth wall of the tray extending from the floor of the tray, the third and fourth walls of the tray having an upper margin and outer surfaces, at least ninety percent of that one-third of the area of the outer surface of the third wall of the tray which is adjacent the upper margin departing from the third wall of the upper surface of the vehicle foot well by no more than an eighth of an inch, at least ninety percent of that one-third of the area of the outer surface of the fourth wall of the tray which is adjacent the upper margin departing from the fourth wall of the vehicle foot well by no more than an eighth of an inch.

67. A vehicle floor tray, comprising:  
a floor substantially conforming to a floor of a vehicle foot well, the floor having at least one longitudinally disposed lateral side and at least one transversely disposed lateral side;  
a first wall integrally formed with the floor and upwardly extending from the first lateral side of the floor;  
a second wall integrally formed with the floor and the first wall and upwardly extending from the second lateral side of the floor;

the floor of the tray having an upper surface including a general portion and a reservoir portion, a general surface of the reservoir portion being lower than and surrounded by the general portion of the upper surface of the floor of the tray;

a plurality of channels molded into the general portion of the upper surface of the tray, bottoms of the channels being lower than the general portion of the upper surface of the tray but higher than the general surface of the reservoir portion; and

a plurality of longitudinally oriented baffles disposed in the reservoir portion and a plurality of transversely oriented baffles disposed in the reservoir portion which are joined to ones of the longitudinally disposed baffles, the channels acting to channel drip water to the reservoir portion, the baffles acting to impede lateral movement of the drip water occurring because of vehicle motion.

68. The vehicle floor tray of Claim 67, wherein the vehicle floor tray is designed to be removably installed in a driver's side foot well, the vehicle for which the floor tray is designed having accelerator and brake pedals operable by the driver's foot, a blank space formed in the general portion of the tray upper surface which is sized to accommodate the heel of the driver's right foot, the blank space not having any of said channels.

69. The vehicle floor tray of Claim 68, wherein the blank space is delimited by an arc of a circle.

70. The vehicle floor tray of Claim 69, wherein the radius of the circle is about four inches.

71. A removable vehicle floor tray which may be removably installed into a vehicle foot well, comprising:

- a floor substantially occupying a horizontal plane; and
- a plurality of sidewalls including a first longitudinally oriented upstanding sidewall extending from the floor to a top margin and a second substantially transversely oriented upstanding sidewall extending from the floor to a top margin, the sidewalls joined at an angle to each other, the top margin of the first sidewall being continuous with a top margin of the second sidewall, the top margins being substantially located in a plane which tilts forwardly and upwardly relative to said horizontal plane.

72. The floor tray of Claim 71, wherein the sidewalls of the tray further include a third upstanding sidewall which extends from the floor to a top margin and a fourth upstanding sidewall which extends from the floor to a top margin, the top margins of the third and fourth sidewalls being continuous with the top margins of the first and second sidewalls and being substantially coplanar therewith.

73. The floor tray of Claim 71, in which the third upstanding sidewall conforms to a kick plate of the vehicle foot well and the fourth upstanding sidewall conforms to a seat pedestal of the vehicle foot well, the third and fourth upstanding sidewalls spaced apart by a substantially horizontal door sill plate of the tray.

74. A water-impervious vehicle floor cover which is installable and removable by a consumer in a vehicle, comprising:

a central layer formed of a polymeric material and having a top surface and a bottom surface;

a top layer formed of a polymeric material and bonded to the top surface of the central layer; and

a bottom layer formed of a polymeric material and bonded to the bottom surface of the central layer, the top and bottom layers having compositions distinct from the composition of the central layer.

75. The vehicle floor cover of Claim 74, wherein at least a portion of the top layer consists of elastomeric material, at least a portion of the bottom layer consisting of an elastomeric material.

76. The vehicle floor cover of Claim 75, wherein the elastomeric material is selected from the group consisting of polybutadiene, EPDM, SBR, natural rubber, NBR and thermoplastic elastomers.

77. A system including a vehicle and a tray for removable installation by a consumer into a foot well of the vehicle, comprising:

a vehicle foot well surface including a floor, at least first and second upstanding walls extending from the floor; and

a tray for removable installation into the vehicle foot well, a floor of the tray approximately conforming to the floor of the foot well, an upstanding first wall of the tray integrally formed with and extending from the floor of the tray and having a first outer surface facing the first wall of the vehicle foot well, an upstanding second wall of the tray integrally formed with and extending from the floor of the tray and having a second outer

surface facing the second wall of the vehicle foot well, the first and second walls of the tray having a top margin, at least ninety percent of that one-half of the area of the first and second outer surfaces which is adjacent the top margin being no more than one-eighth of an inch from the closest surface of the vehicle foot well.

78. A system including a vehicle and a tray for removable installation by a consumer into a foot well of the vehicle, comprising:

a vehicle foot well surface including a floor, at least first and second upstanding walls extending from the floor; and

a tray for removable installation into the vehicle foot well, a floor of the tray approximately conforming to the floor of the foot well, an upstanding first wall of the tray integrally formed with and extending from the floor of the tray and having a first outer surface facing the first wall of the vehicle foot well, an upstanding second wall of the tray integrally formed with and extending from the floor of the tray and having a second outer surface facing the second wall of the vehicle foot well, at least fifty percent of the area of the first and second outer surfaces being no more than one-eighth of an inch from the closest surface of the vehicle foot well.

79. A process for manufacturing a vehicle floor tray, comprising the steps of:  
digitally measuring the three-dimensional position of a plurality of points on a surface of a vehicle foot well for which the vehicle floor tray is to be provided;

storing said points in a memory;

using the stored points to construct a model of the vehicle foot well surface;

using the model of the vehicle foot well surface to construct a three-dimensional image of a vehicle floor tray;



using the stored three-dimensional image to construct a mold for the vehicle floor tray; and  
manufacturing the vehicle floor tray by molding polymer material in the mold.

80. The process of Claim 79, wherein said step of digitally measuring the three-dimensional position of the points on the surface of the vehicle foot well comprises using a coordinate measurement machine (CMM).

81. The process of Claim 79, and further comprising the steps of:  
connecting together groups of the stored points with B-splines; and  
lofting between the B-splines to create areal segments of the surface of the vehicle foot well model.

82. The process of Claim 79, and wherein said step of constructing the three-dimensional image of the vehicle floor tray further comprises the steps of:  
establishing a top sketch plane to intersect the vehicle foot well model and to establish a top margin of the vehicle floor tray;  
establishing a bottom sketch plane to be at the lowest elevation of the vehicle floor tray image to be created; and  
drawing sidewalls between the top sketch plane and the bottom sketch plane to approximate corresponding sidewalls of the vehicle foot well tray.

83. The process of Claim 79, and further comprising the step of:

tilting the top sketch plane so that it is at an angle to a floor of the vehicle foot well model, such that the produced vehicle floor tray is deeper in a direction toward the vehicle firewall than it is toward a seat of the occupant.

84. The process of Claim 79, and further comprising the step of modifying the drawn sidewalls of the three-dimensional image of the vehicle floor tray to conform at least the upper two-thirds of the area of the outer surface of the sidewalls nearest to the top margin to respective surfaces of the vehicle foot well model, such that through those areas the sidewalls of the vehicle floor tray do not depart from the corresponding surfaces of the vehicle foot well by more than one-eighth of an inch.

**VEHICLE FLOOR TRAY**

**ABSTRACT OF THE DISCLOSURE**

A vehicle floor tray is molded from a multiple extrusion polymer sheet such that it has high shear and tensile strength, an acceptable degree of stiffness and a high coefficient of friction on its upper surface. The floor tray design is digitally fitted to a foot well of a particular vehicle such that large areas of at least two upstanding walls of the tray depart from respective surfaces of the foot well by no more than an eighth of an inch.

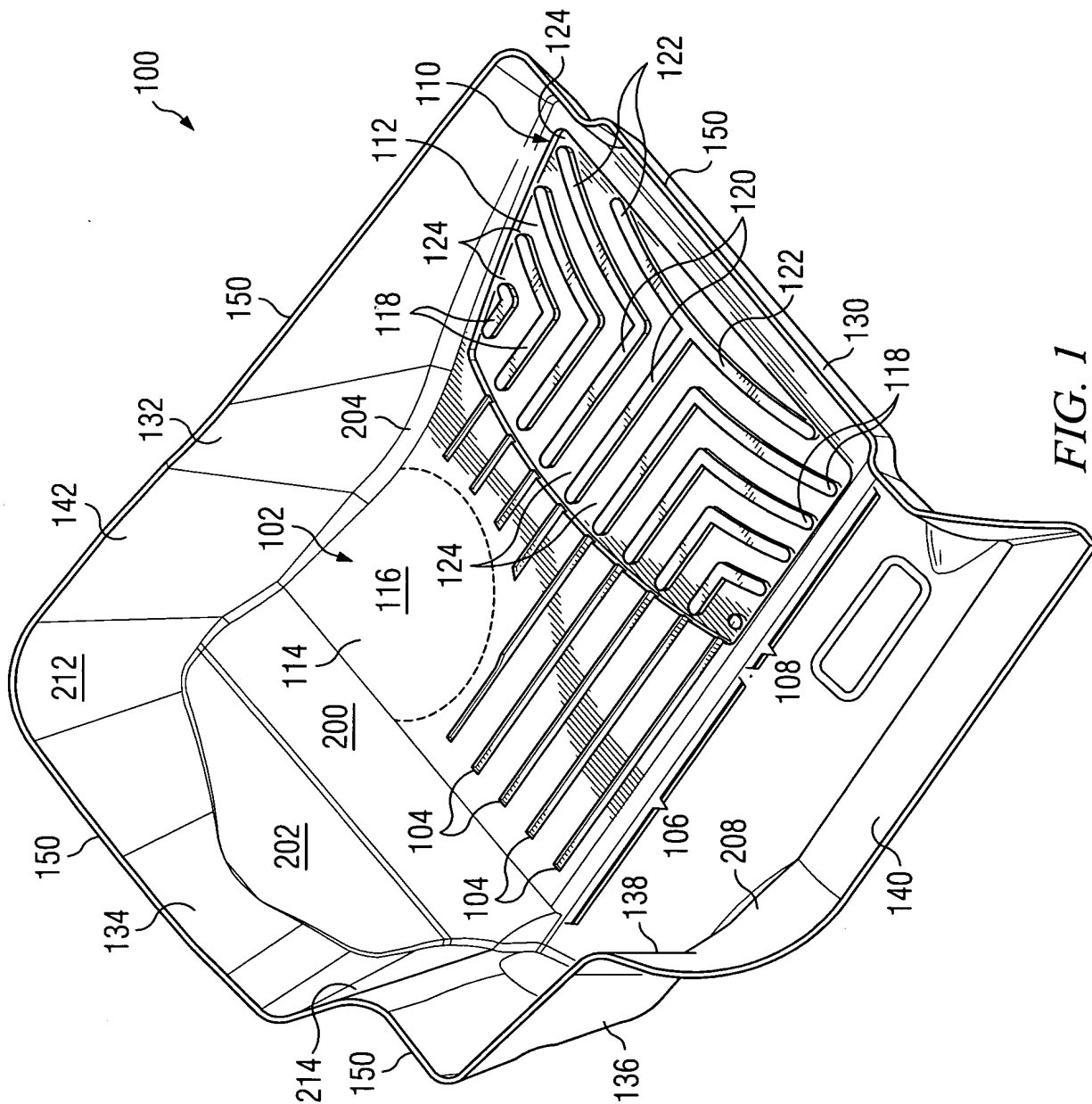


FIG. 1

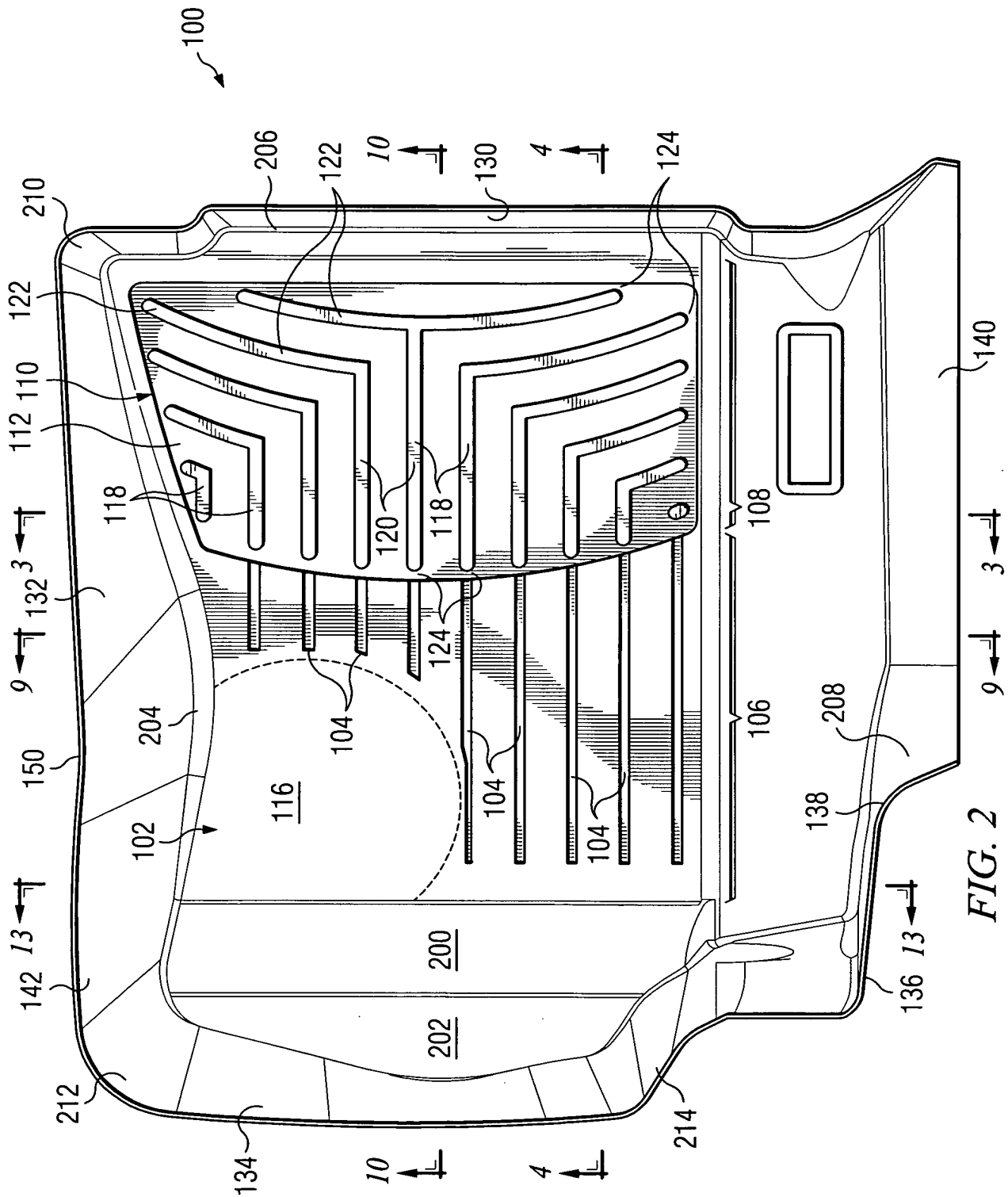


FIG. 2

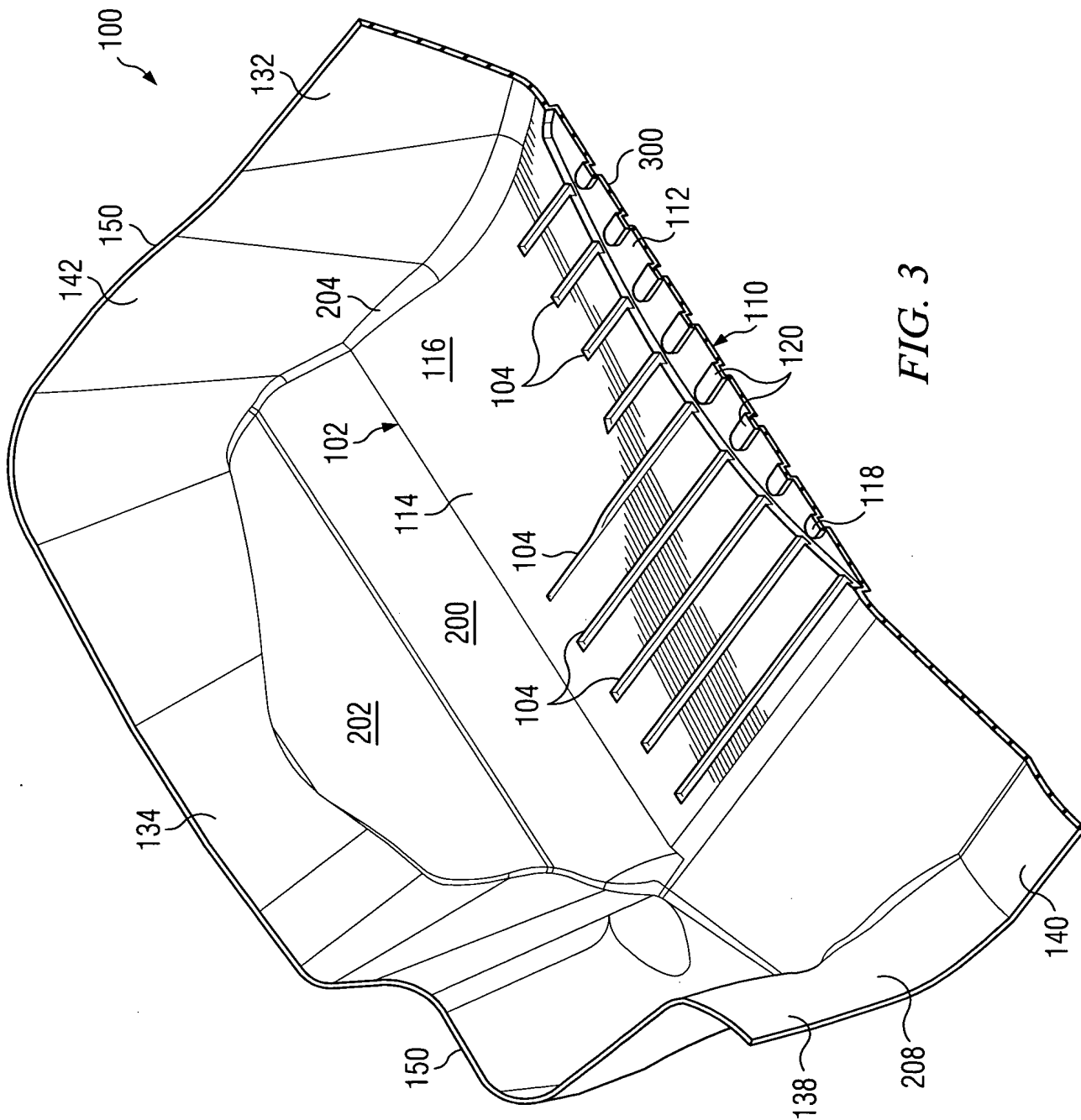


FIG. 3

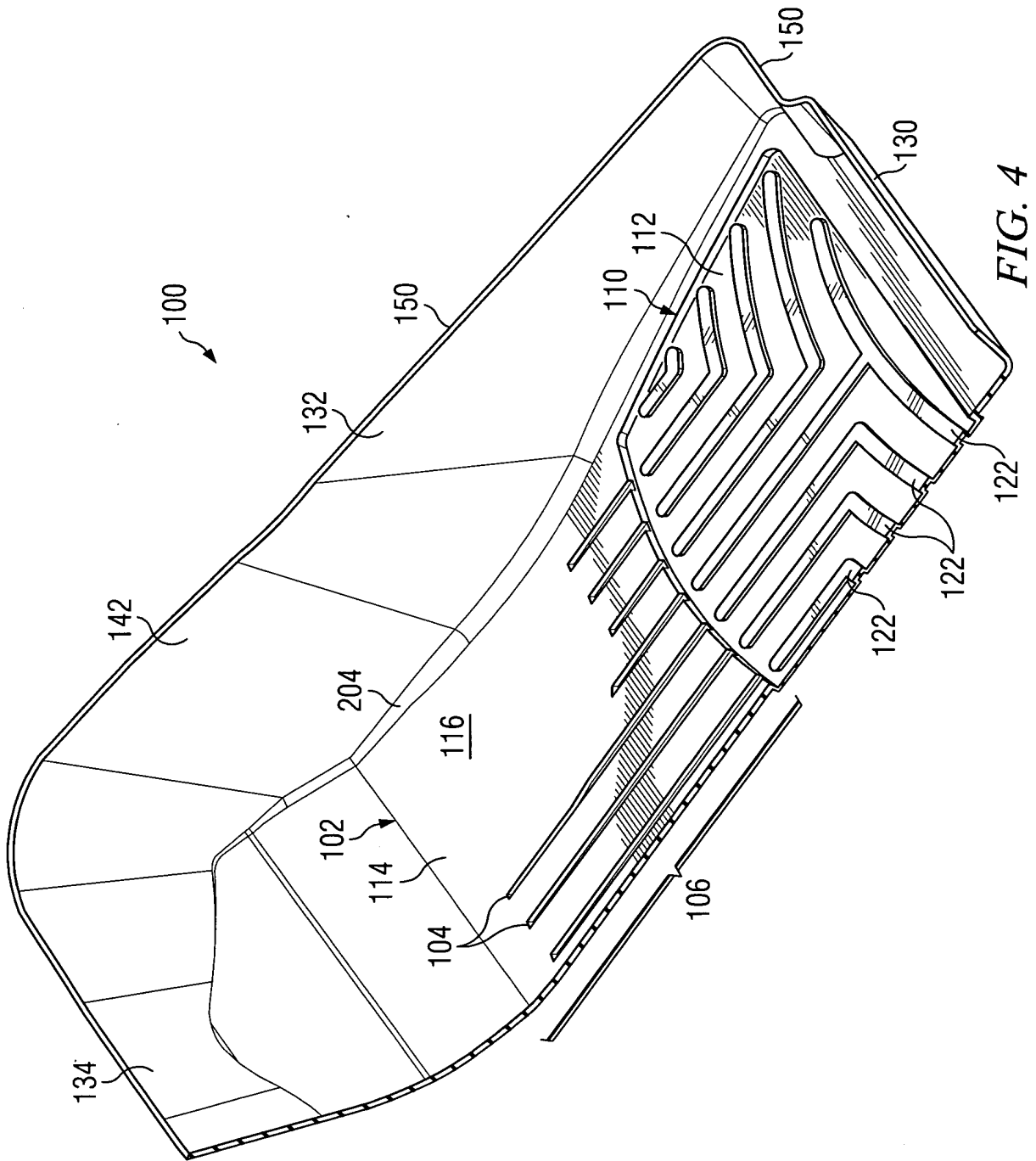


FIG. 4

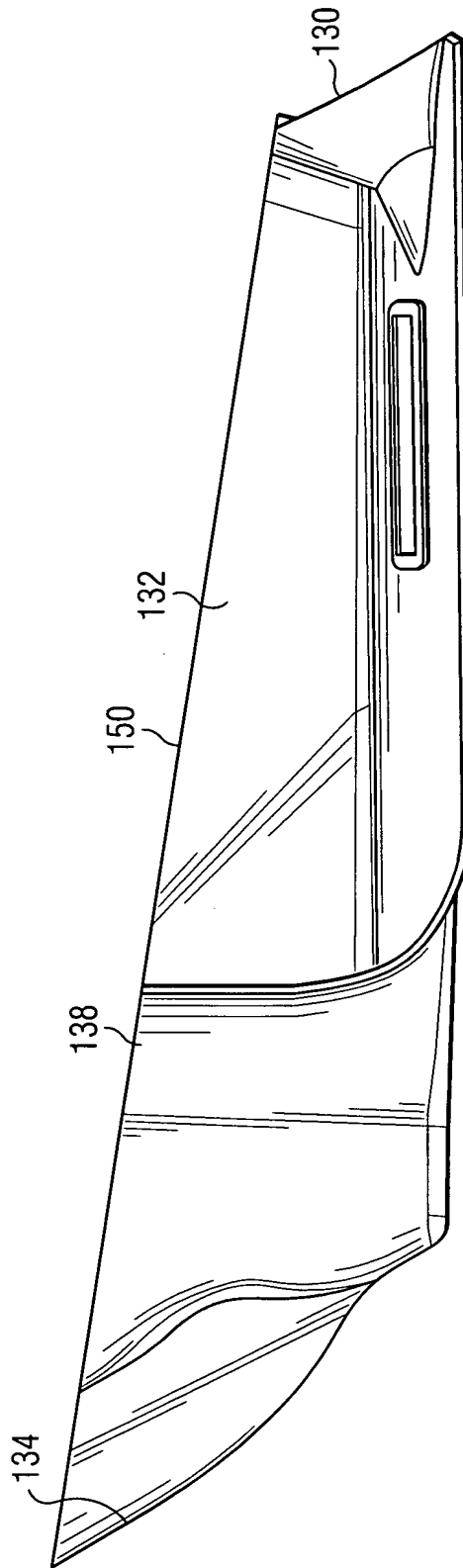


FIG. 5



6/12

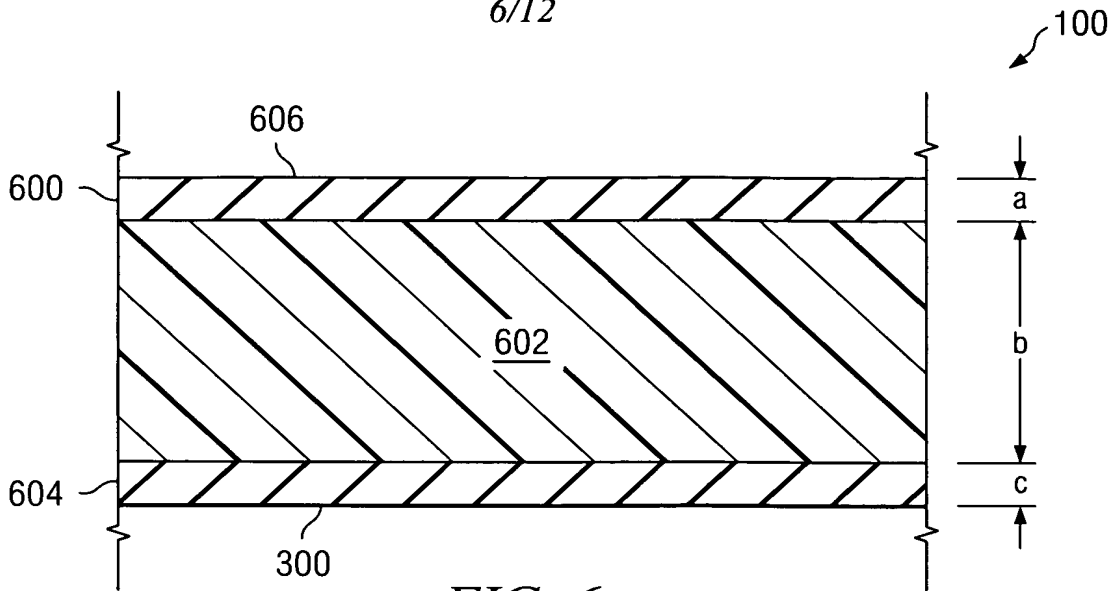


FIG. 6

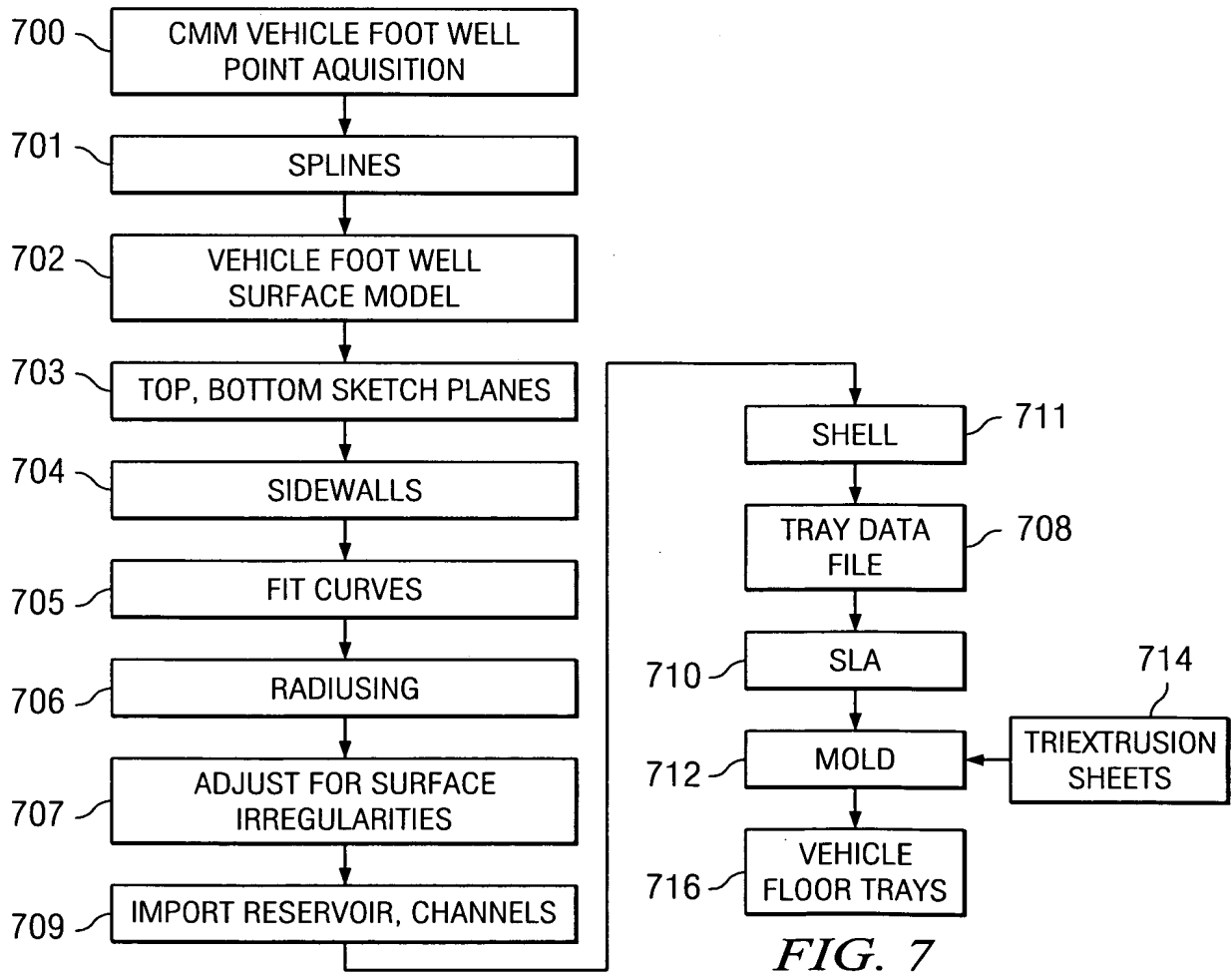


FIG. 7

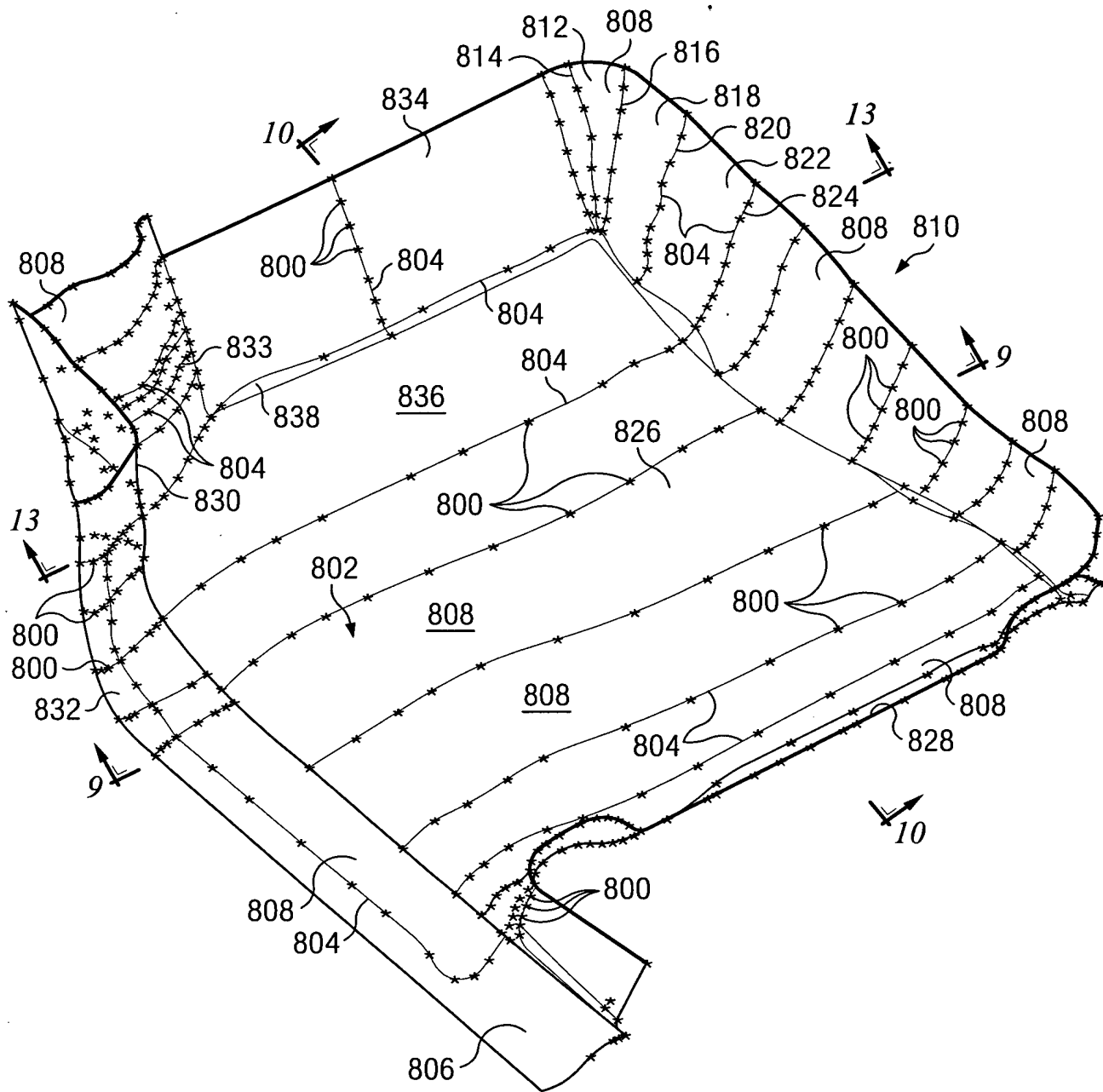


FIG. 8

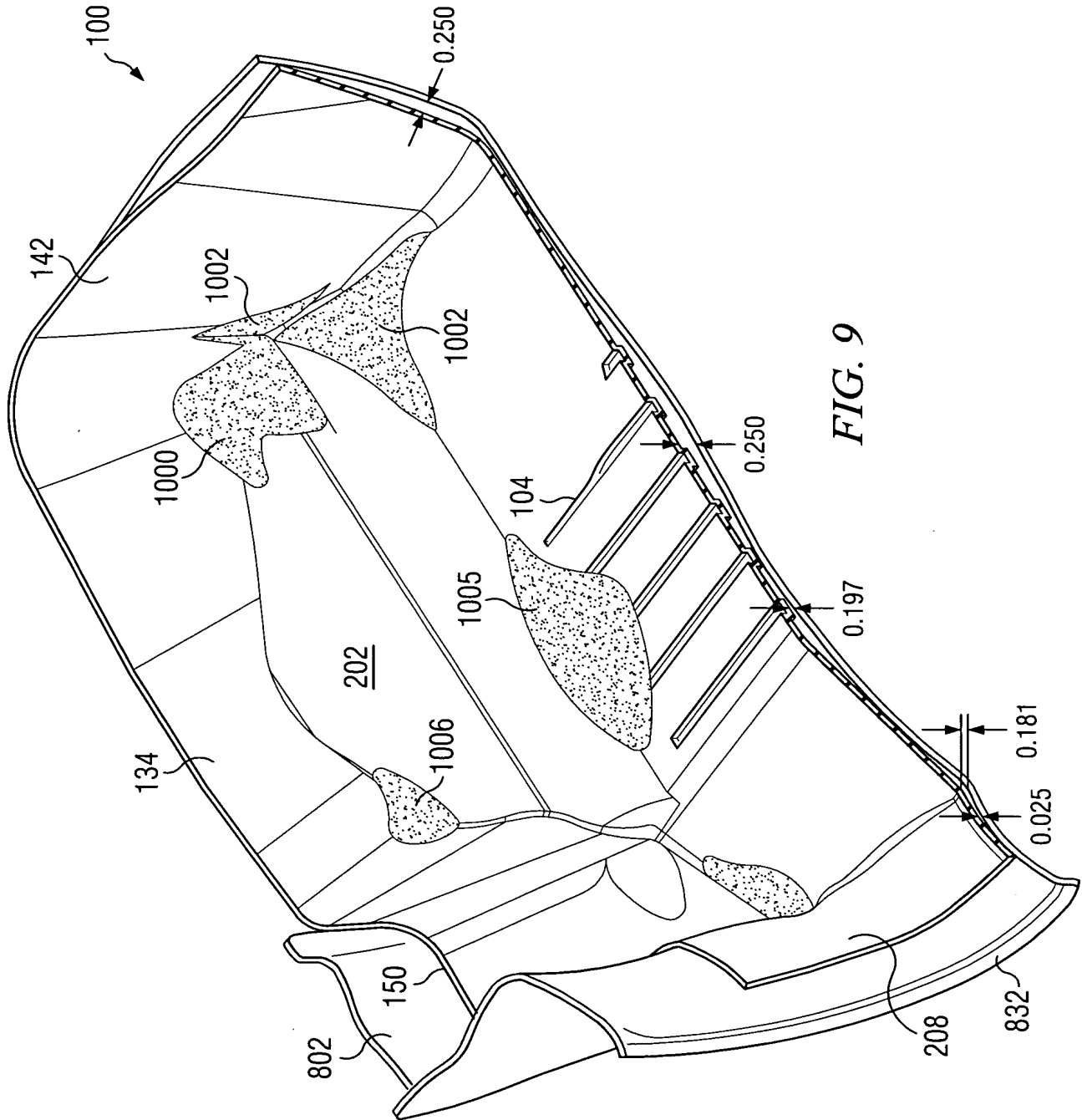


FIG. 9

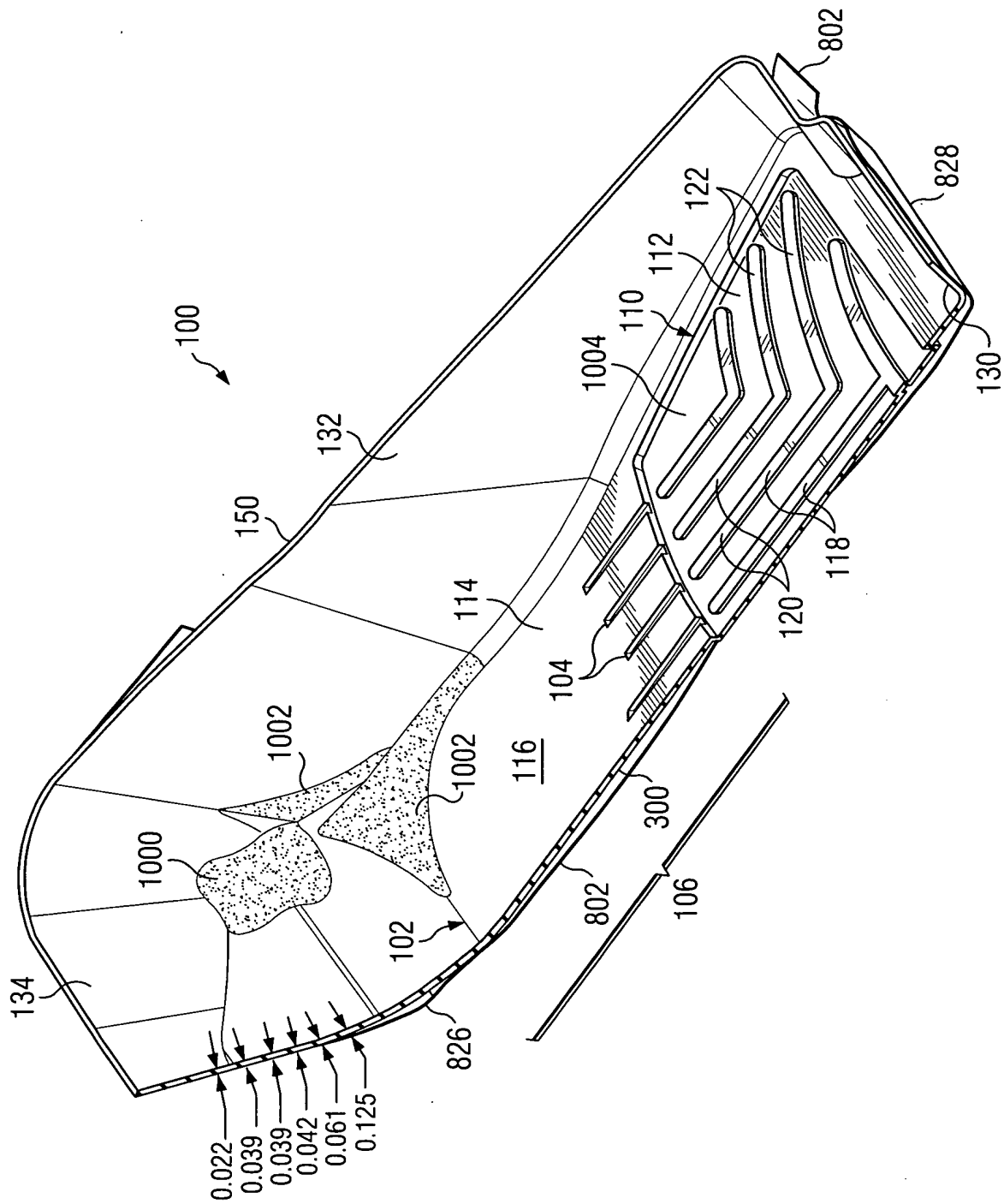


FIG. 10

10/12

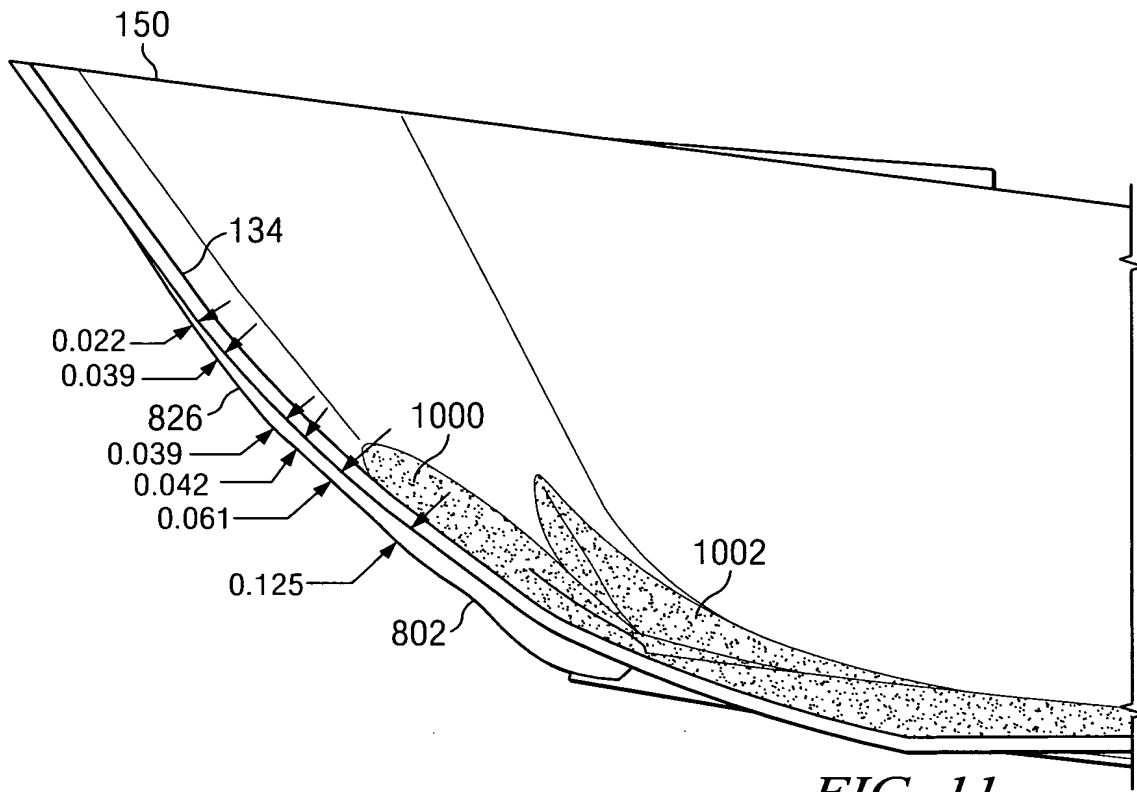


FIG. 11

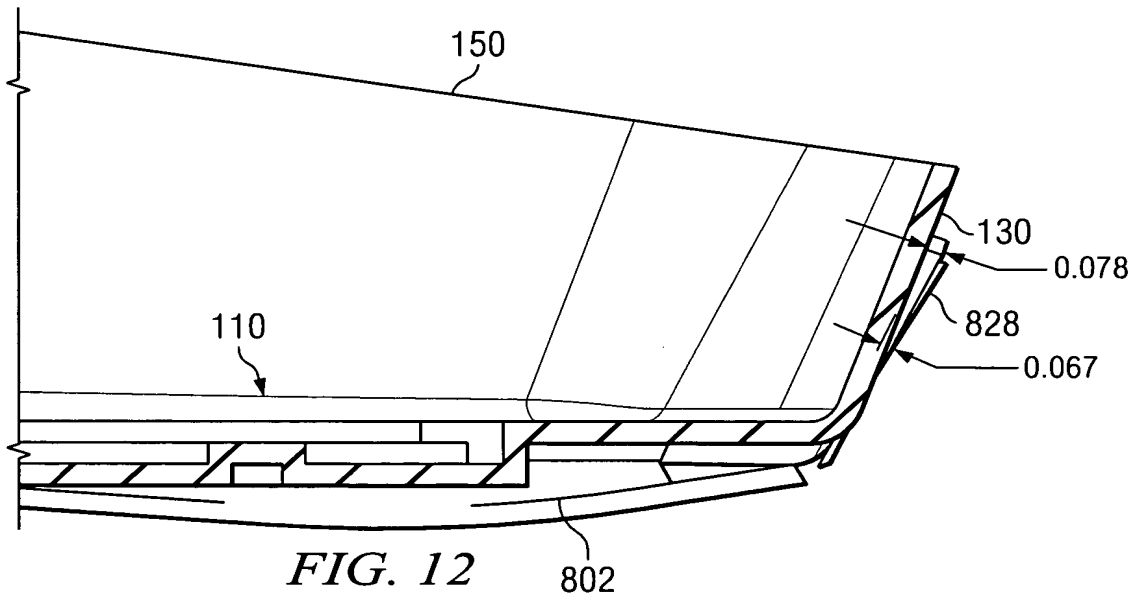


FIG. 12

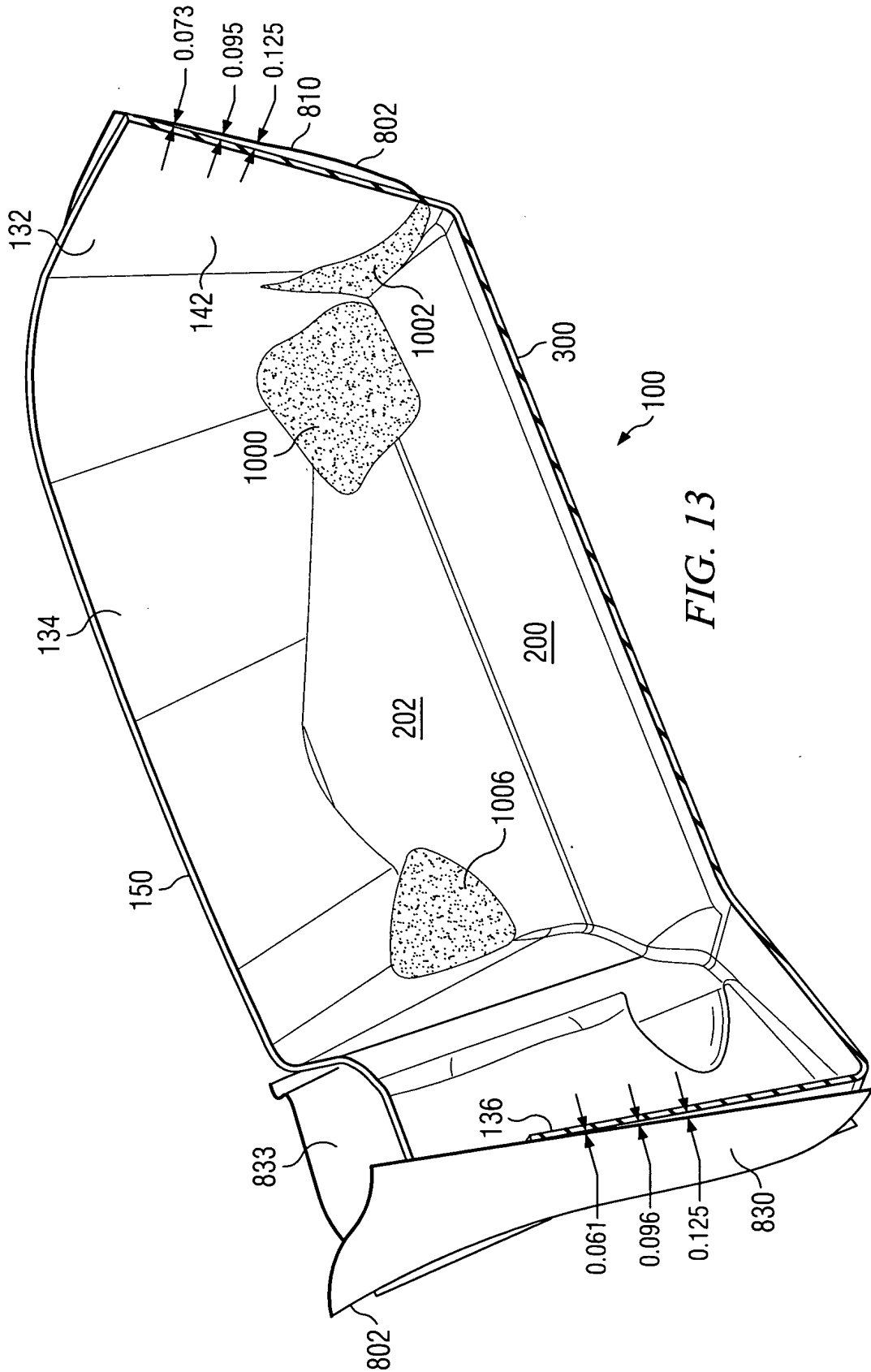


FIG. 13

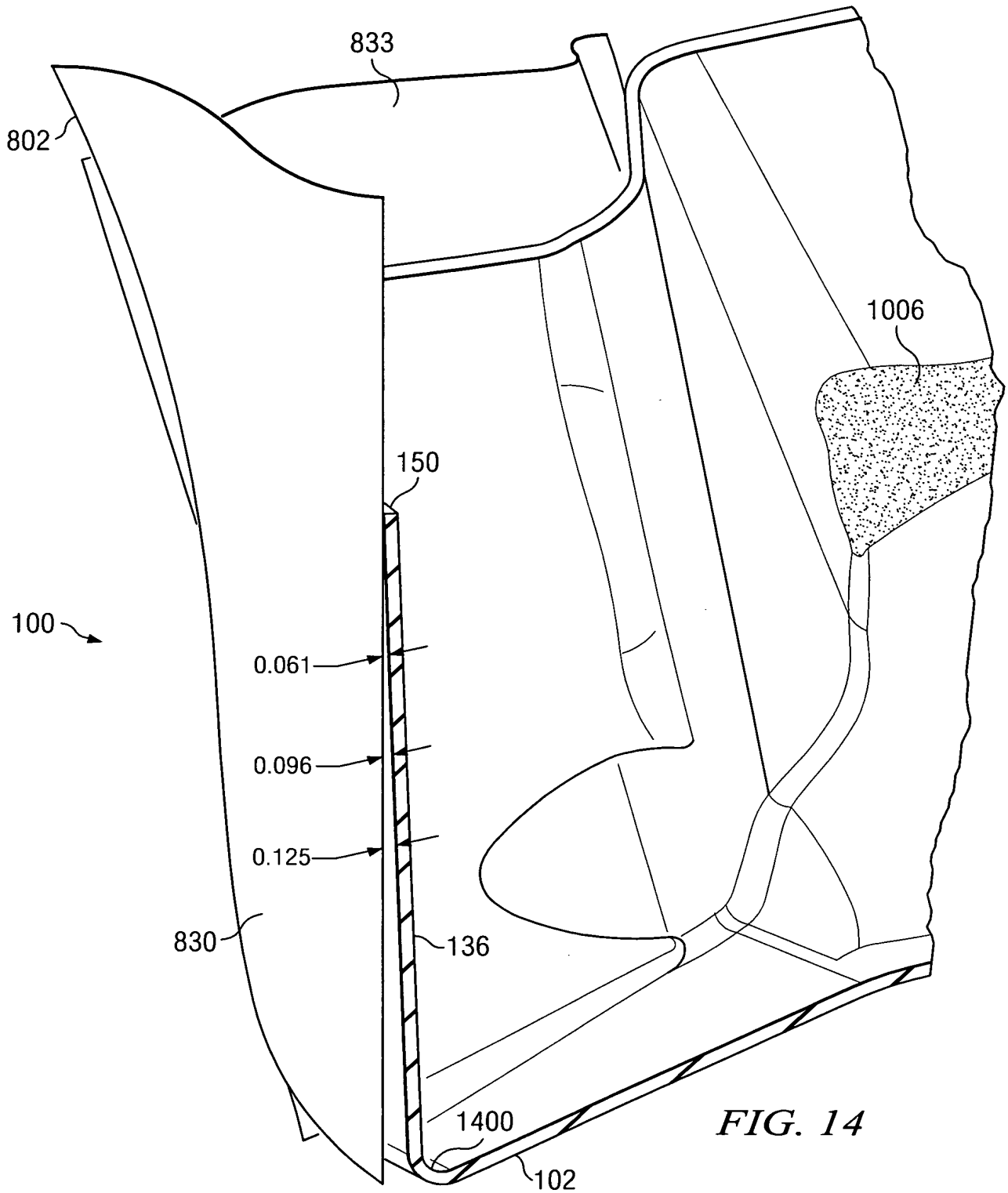


FIG. 14

### INVENTOR'S DECLARATION

As a below named inventor, I declare that:

My residence, post office address and citizenship are as stated below next to my name; that I believe I am the original, first and sole inventor of the subject matter which is claimed and for which a patent is sought on the invention or design entitled VEHICLE FLOOR TRAY, the specification of which:

is attached hereto; or  
\_\_\_\_ was filed on \_\_\_\_ as United States Application No. or PCT International Application No. \_\_\_\_\_; or  
\_\_\_\_ was the subject of an amendment filed in the U.S. Patent and Trademark Office on \_\_\_\_\_

that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above; and that I acknowledge the duty to disclose to the U.S. Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. §1.56.

I hereby claim foreign priority benefits under 35 U.S.C. §119 (a) – (d) or (f), or §365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States, listed below, and have also identified below any foreign or PCT international application(s) for patent or inventor's certificate having a filing date before that of the application to which priority is claimed:

<u>Application Number</u>	<u>Country</u>	<u>Date Filed</u>	<u>Priority Claimed</u>
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I hereby claim the benefit under 35 U.S.C. §120 or §365(c) of any United States application(s), or PCT international application(s) designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application(s) in the manner provided by the first paragraph of 35 U.S.C. §112:

<u>Application Serial Number</u>	<u>Date Filed</u>	<u>Status</u>
----------------------------------	-------------------	---------------

Direct all telephone calls to Jefferson Perkins at Telephone No. (630) 990-4503.



Address all correspondence to:

Daspin & Aument, LLP  
210 W. 22<sup>nd</sup> Street, Suite 102  
Oak Brook, Illinois 60523  
Fax 630 990 4511

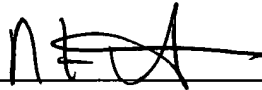
**CUSTOMER NUMBER: 43138**

I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Attorney Docket No.: 301700-00069

Full Name of Sole Inventor: David F. MACNEIL

Inventor's signature:

  
\_\_\_\_\_

Date of signature:

OCTOBER 29, 2004

Residence:

Hinsdale, IL

Citizenship:

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205 East Sixth Street  
Hinsdale, IL 60521

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

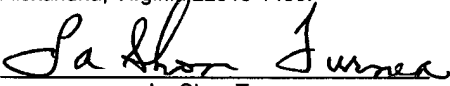
In re the application of:

David F. MACNEIL

Filed: Herewith

For: VEHICLE FLOOR TRAY

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

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Date of Deposit _____
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 La Shon Turner

**POWER OF ATTORNEY**

I, David F. MacNeil, am the sole inventor of the above-identified patent application (the "Patent Application"). I remain the sole owner of the Patent Application, not having made any assignment of any interest therein to any other party.

I hereby appoint Jefferson Perkins, Reg. No. 31,407, of the firm of Daspin & Aument, LLP, as my attorney to prosecute this Patent Application and to transact all business in the U.S. Patent and Trademark Office connected with the Patent Application and with any resulting patent, and to represent me before all competent International Authorities. This appointment includes a full power of substitution and revocation.

Please direct all correspondence to:

Daspin & Aument, LLP  
210 W. 22<sup>nd</sup> Street, Suite 102  
Oak Brook, Illinois 60523

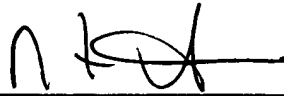
Please direct all telephone calls to:

Jefferson Perkins  
(630) 990-4503

**CUSTOMER NUMBER: 43138**

I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements are made with the knowledge that willful false statements, and the like so made, are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Signature:



David F. MacNeil

Date:

OCTOBER 29, 2004

PATENT APPLICATION SERIAL NO. \_\_\_\_\_

U.S. DEPARTMENT OF COMMERCE  
PATENT AND TRADEMARK OFFICE  
FEE RECORD SHEET

11/02/2004 MWOLDGE1 00000003 503138 10976441

01 FC:2001		395.00 OP
02 FC:2201		308.00 OP
03 FC:2202	186.00 DA	390.00 OP

PTO-1556  
(5/87)

**PATENT APPLICATION FEE DETERMINATION RECORD**  
Effective October 1, 2004

Application or Docket Number

1097644

**CLAIMS AS FILED - PART I**

	(Column 1)	(Column 2)
TOTAL CLAIMS	84	
FOR	NUMBER FILED	NUMBER EXTRA
TOTAL CHARGEABLE CLAIMS	84 minus 20 =	* 64
INDEPENDENT CLAIMS	10 minus 3 =	* 7
MULTIPLE DEPENDENT CLAIM PRESENT <input type="checkbox"/>		

**SMALL ENTITY TYPE**

**OTHER THAN SMALL ENTITY** OR

RATE	FEE
BASIC FEE	395.00
X\$ 9=	576
X44=	308
+150=	
<b>TOTAL</b>	<b>1269</b>

RATE	FEE
BASIC FEE	790.00
X\$18=	
X88=	
+300=	
<b>TOTAL</b>	

\* If the difference in column 1 is less than zero, enter "0" in column 2

**CLAIMS AS AMENDED - PART II**

	(Column 1)	(Column 2)	(Column 3)
<b>AMENDMENT A</b>	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR
	Total	*	Minus **
	Independent	*	Minus ***
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <input type="checkbox"/>			

**SMALL ENTITY** OR

**OTHER THAN SMALL ENTITY**

RATE	ADDITIONAL FEE
X\$ 9=	
X44=	
+150=	
<b>TOTAL ADDIT. FEE</b>	

RATE	ADDITIONAL FEE
X\$18=	
X88=	
+300=	
<b>TOTAL ADDIT. FEE</b>	

	(Column 1)	(Column 2)	(Column 3)
<b>AMENDMENT B</b>	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR
	Total	*	Minus **
	Independent	*	Minus ***
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <input type="checkbox"/>			

RATE	ADDITIONAL FEE
X\$ 9=	
X44=	
+150=	
<b>TOTAL ADDIT. FEE</b>	

RATE	ADDITIONAL FEE
X\$18=	
X88=	
+300=	
<b>TOTAL ADDIT. FEE</b>	

	(Column 1)	(Column 2)	(Column 3)
<b>AMENDMENT C</b>	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR
	Total	*	Minus **
	Independent	*	Minus ***
FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM <input type="checkbox"/>			

RATE	ADDITIONAL FEE
X\$ 9=	
X44=	
+150=	
<b>TOTAL ADDIT. FEE</b>	

RATE	ADDITIONAL FEE
X\$18=	
X88=	
+300=	
<b>TOTAL ADDIT. FEE</b>	

\* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

\*\* If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20."

\*\*\* If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3."

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.