



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification ⁶ : A61K 7/06, 7/50</p>	<p>A1</p>	<p>(11) International Publication Number: WO 97/26854 (43) International Publication Date: 31 July 1997 (31.07.97)</p>
<p>(21) International Application Number: PCT/US97/00081 (22) International Filing Date: 6 January 1997 (06.01.97) (30) Priority Data: 08/593,727 27 January 1996 (27.01.96) US (71) Applicant: THE PROCTER & GAMBLE COMPANY [US/US]; One Procter & Gamble Plaza, Cincinnati, OH 45202 (US). (72) Inventors: KALLA, Karen, Kay; 653 Rushton Road, Cincinnati, OH 45226 (US). HUNT, Julie, Marie; 6187 Shawna Court, Middletown, OH 45044 (US). (74) Agents: REED, T., David et al.; The Procter & Gamble Company, 5299 Spring Grove Avenue, Cincinnati, OH 45217 (US).</p>	<p>(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, TJ, TM, TR, TT, UA, UG, UZ, VN, ARIPO patent (KE, LS, MW, SD, SZ, UG), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).</p> <p>Published <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i></p>	
<p>(54) Title: SHAMPOO COMPOSITIONS WITH IMPROVED DEPOSITION OF ANTIMICROBIAL AGENTS</p> <p>(57) Abstract</p> <p>Disclosed are antidandruff shampoo compositions with improved deposition of antimicrobial agents, which compositions comprise (a) from about 7 % to about 30 % by weight of a deterative surfactant selected from the group consisting of anionic surfactant, amphoteric surfactant, zwitterionic surfactant, and combinations thereof; (b) from about 0.1 % to about 10 % by weight of an antimicrobial agent; (c) from about 0.5 % to about 10 % by weight of a suspending agent; (d) from about 0.01 % to about 1.0 % by weight of a cationic guar polymer having a charge density of from about 0.01 meq/g to about 3 meq/gm; and (e) from about 40 % to about 92 % by weight of water; wherein at least about 50 % by weight of the cationic guar polymer is in coacervate form, said coacervate comprising deterative surfactant and cationic guar polymer.</p>		

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AM	Armenia	GB	United Kingdom	MW	Malawi
AT	Austria	GE	Georgia	MX	Mexico
AU	Australia	GN	Guinea	NE	Niger
BB	Barbados	GR	Greece	NL	Netherlands
BE	Belgium	HU	Hungary	NO	Norway
BF	Burkina Faso	IE	Ireland	NZ	New Zealand
BG	Bulgaria	IT	Italy	PL	Poland
BJ	Benin	JP	Japan	PT	Portugal
BR	Brazil	KE	Kenya	RO	Romania
BY	Belarus	KG	Kyrgystan	RU	Russian Federation
CA	Canada	KP	Democratic People's Republic of Korea	SD	Sudan
CF	Central African Republic	KR	Republic of Korea	SE	Sweden
CG	Congo	KZ	Kazakhstan	SG	Singapore
CH	Switzerland	LI	Liechtenstein	SI	Slovenia
CI	Côte d'Ivoire	LK	Sri Lanka	SK	Slovakia
CM	Cameroon	LR	Liberia	SN	Senegal
CN	China	LT	Lithuania	SZ	Swaziland
CS	Czechoslovakia	LU	Luxembourg	TD	Chad
CZ	Czech Republic	LV	Latvia	TG	Togo
DE	Germany	MC	Monaco	TJ	Tajikistan
DK	Denmark	MD	Republic of Moldova	TT	Trinidad and Tobago
EE	Estonia	MG	Madagascar	UA	Ukraine
ES	Spain	ML	Mali	UG	Uganda
FI	Finland	MN	Mongolia	US	United States of America
FR	France			UZ	Uzbekistan

SHAMPOO COMPOSITIONS WITH IMPROVED DEPOSITION OF ANTIMICROBIAL AGENTS

FIELD OF THE INVENTION

The present invention relates to shampoo compositions containing antimicrobial agents which provide antidandruff activity. In particular, the present invention relates to shampoo compositions containing antimicrobial agents, preferably particulate antimicrobial agents, in combination with a cationic guar polymer as an antimicrobial agent deposition aid.

BACKGROUND OF THE INVENTION

Various anti-dandruff shampoo compositions are commercially available or otherwise known in the shampoo art. These compositions typically comprise particulate, crystalline antimicrobial agents dispersed and suspended throughout the composition. Antimicrobial agents used for this purpose include sulfur, selenium sulfide and heavy metal salts of pyridinethione. During the shampooing process, these antimicrobial agents deposit on the scalp to provide anti-dandruff activity.

Many anti-dandruff shampoos, however, do not provide sufficient antimicrobial agent deposition during the shampooing process. Without such deposition, the antimicrobial agents simply rinse away during shampooing and therefore provide little or no anti-dandruff activity. In addition, the deterative surfactants in these shampoo compositions which are designed to remove oil, grease, dirt, and particulate matter will also carry away particulate antimicrobial agents during rinsing, thus further decreasing deposition and anti-dandruff activity.

Deposition of particulate antimicrobial agents is especially difficult in anti-dandruff shampoo compositions containing crystalline suspending agents. These suspending agents help disperse and suspend particulate antimicrobial agents in the shampoo composition. These suspending agents, however, adversely affect lathering performance. It has therefore become conventional practice to enhance the lathering performance of these shampoos by increasing deterative surfactant concentrations or by adding foam boosters, both of which further decrease deposition of particulate antimicrobial agents from the shampoo compositions.

It has now been found that select cationic deposition polymers are especially effective in providing enhanced deposition of antimicrobial agents, especially particulate antimicrobial agents, from a shampoo composition. The select polymers

are cationic derivatives of guar gum which have been found to be most effective when used in combination with crystalline suspending agents and high levels of anionic, amphoteric or zwitterionic surfactant in an anti-dandruff shampoo composition.

It is therefore an object of the present invention to provide an anti-dandruff shampoo composition with improved deposition of antimicrobial agents, especially particulate antimicrobial agents, and further to provide for such improved deposition in the presence of crystalline suspending agents and high concentrations of detergent surfactant. It is yet another object of the present invention to provide anti-dandruff shampoo compositions with excellent anti-dandruff activity and reduced concentration of antimicrobial agents.

SUMMARY OF THE INVENTION

The present invention is directed to high lathering, anti-dandruff shampoo compositions with improved deposition of antimicrobial agents, which compositions comprise (a) from about 7% to about 30% by weight of a detergent surfactant selected from the group consisting of anionic surfactant, amphoteric surfactant, zwitterionic surfactant, and combinations thereof; (b) from about 0.1% to about 10% by weight of an antimicrobial agent; (c) from about 0.5% to about 10% by weight of a suspending agent; (d) from about 0.01% to about 1.0% by weight of a cationic guar polymer having a charge density of from about 0.1 to about 3meq/gm, and (e) from about 40% to about 92% by weight of water; wherein at least about 50% by weight of the cationic guar polymer is in coacervate form, said coacervate comprising detergent surfactant and cationic guar polymer.

DETAILED DESCRIPTION OF THE INVENTION

The shampoo compositions of the present invention can comprise, consist of, or consist essentially of the essential elements and limitations of the invention described herein, as well any of the additional or optional ingredients, components, or limitations described herein.

All percentages, parts and ratios are based upon the total weight of the shampoo compositions of the present invention, unless otherwise specified. All such weights as they pertain to listed ingredients are based on the active level and, therefore, do not include carriers or by-products that may be included in commercially available materials.

Deterstive Surfactant

The shampoo compositions of the present invention comprise a deterstive surfactant selected from the group consisting of anionic surfactants, amphoteric surfactants, zwitterionic surfactants, and combinations thereof. The shampoo compositions preferably comprise an anionic surfactant. The deterstive surfactant provides the shampoo compositions with cleaning performance.

Anionic surfactant

The deterstive surfactant component of the shampoo compositions is preferably an anionic surfactant. Concentrations of anionic surfactant can range from about 7% to about 30%, preferably from about 10% to about 25%, more preferably from about 12% to about 22%, by weight of the shampoo compositions.

Anionic surfactants for use in the shampoo compositions include alkyl and alkyl ether sulfates. These materials have the respective formulae $ROSO_3M$ and $RO(C_2H_4O)_xSO_3M$, wherein R is alkyl or alkenyl of from about 8 to about 30 carbon atoms, x is an integer from 1 to 10, and M is a hydrogen, alkali metal (e.g., lithium, sodium, potassium), alkali earth metal (e.g., beryllium, magnesium, calcium, strontium, barium) ammonium or substituted ammonium.

Preferably, R has from about 10 to about 18 carbon atoms in both the alkyl and alkyl ether sulfates. The alkyl ether sulfates are typically made as condensation products of ethylene oxide and monohydric alcohols having from about 8 to about 24 carbon atoms. The alcohols can be derived from fats, e.g., coconut oil or tallow, or can be synthetic. Lauryl alcohol and straight chain alcohols derived from coconut oil are preferred. Such alcohols are reacted with between about 0 and about 10, and especially about 3, molar proportions of ethylene oxide and the resulting mixture of molecular species having, for example, an average of 3 moles of ethylene oxide per mole of alcohol, is sulfated and neutralized.

Specific examples of alkyl ether sulfates which may be used in the shampoo compositions of the present invention are sodium and ammonium salts of coconut alkyl triethylene glycol ether sulfate; tallow alkyl triethylene glycol ether sulfate, and tallow alkyl hexaoxyethylene sulfate. Highly preferred alkyl ether sulfates are those comprising a combination of individual compounds, the combination having an average alkyl chain length of from about 10 to about 16 carbon atoms and an average degree of ethoxylation of from about 1 to about 4 moles of ethylene oxide.

Other suitable anionic surfactants are the water-soluble salts of organic, sulfuric acid reaction products of the general formula $[R_1-SO_3-M]$ where R_1 is

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.