

# Paul E. Koch

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Over 45 years of commercial, industrial, and university experience in all aspects of plastic and polymer materials, plastic part design, tool design, and plastics processing. Diverse management and program development experience, including entrepreneurial start-up companies. Founder and Principal Researcher for the Plastics Services Network, which is a consulting and outreach organization.

## EDUCATION:

B.S., Chemical Engineering, University of Detroit, 1972

Doctorate of Engineering in Plastics Engineering, University of Massachusetts - Lowell, 1996

## EXPERIENCE:

Principle Researcher - 1995-present.....Plastics Services Network

University Professor Emeritus – 2014-present.....Penn State University

University Professor – 1988-2014.....Penn State University

Program Manager - 1987-1988.....Avery International, Fasson Division

Manager of Engineering - 1985-1987.....Associated Enterprises/3M

Group Leader - 1981-1984.....Standard Oil Company/Energy Conversion  
Devices

Senior Engineer, Engineer - 1972-1981.....Standard Oil Company, Research Center

## PUBLICATIONS/PRESENTATIONS:

### 1. Articles published in refereed journals

Standish, N.W., R.C. Adams, and P.E. Koch. Viscoelastic Properties of Acrylonitrile-Acrylate Ester Copolymers. Applied Polymer Symposium, 25:275-283 (1974) (Co-author).

Koch, P.E. and D.J. Schenck. A Study of Silane Coupling for Commercially Bonding Dissimilar Thermoset Materials. Journal of Adhesion Science and Technology. 6(1):227-230 (1992) (10 pages) (Principal author).

## 2. Books

Koch, P.E. and R. Scherer, Plastics Technology Study Guide, RonJon Publishing for the Society of Plastics Engineers, 271 pages (1998).

Koch, P.E. and R. Scherer, Revision to National Plastics Certification Manual, 2<sup>nd</sup> volume (1999).

## 3. Articles published in non refereed journals

Koch, P.E. Developing Next Generation Power Systems. Intelec. Conference, Phoenix, AZ (September 12-14, 2000).

Koch, P.E., M.G. Chisholm. An Introductory Polymer Chemistry Course for Plastics Technology Students. Journal of Chemical Education, (2000) (5 pages) (Co-author)

## 4. Articles published in refereed proceedings

"Design Constraints of Injection Molding Foaming Thermoplastics Using Gas Counter Pressure Molds," P.E. Koch, D.J. Steffan and J. Hanisek, 47<sup>th</sup> Annual Technical Conference of the Society of Plastics Engineers, New York, NY, May 1-4, 1989 (presented by P.E. Koch).

Counter Pressure Molds. Proceedings of the 47<sup>th</sup> Annual Technical Conference of the Society of Plastics Engineers. New York, NY pp.231-234 (1989) (Principal Author).

Koch, P.E. and M. Ross. Separation of PET and Aluminum. Proceedings of the 48<sup>th</sup> Annual Technical Conference of the Society of Plastics Engineers. Dallas, TX, pp. 1457-1458 (1990) (Principal author).

Koch, P. E., J.P. Beaumont, and R.E. Farrell. Frictional Heating in Runners for Enhanced Thermoset Molding. Proceedings of the 48<sup>th</sup> Annual Technical Conference of the Society of Plastics Engineers. Dallas, TX, pp. 686-687 (1990) (Co-author).

Farrell, R.E., J.P. Beaumont and P.E. Koch. Performing an Energy Audit on an Injection Molding Process. Proceedings of the 49<sup>th</sup> Annual Technical Conference of the Society of Plastics Engineers. Montreal, Canada, pp. 504-507 (1991) (Co-author).

Koch, P.E., D. Heuer, and J. Raybuck. A Study of the Tensile Creep Behavior of HDPE in Aqueous Mediums. Proceedings of the 57<sup>th</sup> Annual Technical Conference of the Society of Plastics Engineers. New York, NY, (1999).

Koch, P.E. and McCarron. Developing a Surface Texture with Film Insert Molding. Proceedings of the 58<sup>th</sup> Annual Technical Conference of the Society of Plastics Engineers, Orlando, FL (2000).

Koch, P.E. and Heuer. Creep Testing of Polyolefins in Aqueous Mediums. Proceedings of the 58<sup>th</sup> Annual Technical Conference of the Society of Plastics Engineers, Orlando, FL (2000).

Koch, P.E., M. Alabran. Computer Modeling of Gas Permeation in Flexible Packages. Proceedings of the 62<sup>nd</sup> Annual Technical Conference of the Society of Plastics Engineers, Chicago, IL (2004).

Solovyov, S.E., Powers, T.H., Koch, P.E., Williams, J.A. Reactive Barrier Composites: An Alternative to Passive Packaging Barriers. Proceedings of the 14<sup>th</sup> International Conference on Composites/Nano Engineering (ICCE - 14) Boulder, Colorado, 2-8 July 2006

Solovyov, S.E., Powers, T.H., Koch, P.E. Control of Moisture and Volatile Organic Compounds by Sorbent-Loaded Composites. Society of Plastics Engineer's Automotive Composites Conference & Exposition (ACCE). Troy, Michigan, 13-14 September 2006

Koch, P.E., Young, B.A., Johnson, B.G., Dropik, M.J. Teaching Multiple Class Capstone Projects. Proceedings of the 65<sup>th</sup> Annual Technical Conference of the Society of Plastics Engineers, Cincinnati, OH (2007).

Alabran, M.W., Koch, P.E., Carr, J.C. The Effects of Molding Conditions on Nanoscale Replications of Thermoplastic Elastomers. Proceedings of the 15<sup>th</sup> International Conference on Composites/Nano Engineering (ICCE - 15) Haikou, Hainan Island, China, 15-21 July 2007

Solovyov, S.E., Powers, T.H., Koch, P.E. Adsorptive Composite Barriers for Packaging Applications. Proceedings of the 15<sup>th</sup> International Conference on Composites/Nano Engineering (ICCE - 15) Haikou, Hainan Island, China, 15-21 July 2007

## **5. Manuscripts submitted for publication**

Koch, P.E. and D. McClelland. Economic Development Provides Competitive Advantage. Proceedings of the 51<sup>st</sup> Annual Technical Conference of the Society of Plastics Engineers. (1993) (Principal author).

Broadhead, R.M. and P.E. Koch. Variation of Shrinkage in Commodity Plastic Resulting From the Addition of Colorants. Proceedings of the 51<sup>st</sup> Annual Technical Conference of the Society of Plastics Engineers. (1993) (Co-author).

Koch, P.E. and D.J. Schenck. A Study of a Melamine Foil Overlay Applied in Compression-Molded Polyester Dinnerware. Proceedings of the 50<sup>th</sup> Annual Technical Conference of the Society of Plastics Engineers. (1992) (Principal author).

Koch, P.E. Long Term Liability Effects in Polymers for Electric Power Application. Submitted for publication, Intelec (2001).

## **6. Research reports to sponsor**

Design Concepts Using HDPE Foams in a Proprietary Line of Trench Drains Final Report, Zurn, (22 pages) (1996).

Polymer Screen project report, (1997).

Emerson Polymer's Report on Metallocene Polymers, Nov. 1998.

Extrusion Technology for the Astec Division of Emerson, 1999.

Emerson - Metal Injection Molding, two-day seminar with reports (2000).

FritoLay - Permeation Reports (2000).

Zurn Industry – PEX Piping (2001)

Multisorb Technologies – Permeation in Flexible Packaging (2002, 2003)

Emerson – ASCO – Overmolding Issues (2004)

Multisorb Technologies – Active Packaging Barriers (2005)

Zurn Industry – Polyethylene Foam Molding (2006)

Emerson Appliance Solutions – Optimizing Molding Processes – (2007)

## **7. Manuscripts in progress**

Plastic Certification Review book published in Sept. 1998.

Ultra High Shear Rate Effects on Commercial Plastic Journal of Injection Molding.

## **Papers presented at technical and professional meetings**

"Design Constraints of Injection Molding Foaming Thermoplastics Using Gas Counter Pressure Molds," P.E. Koch, D.J. Steffan and J. Hanisek, 47<sup>th</sup> Annual Technical Conference of the Society of Plastics Engineers, New York, NY, May 1-4, 1989 (presented by P.E. Koch).

- "Separation of PET and Aluminum," P.E. Koch and M. Ross, 48<sup>th</sup> Annual Technical Conference of the Society of Plastics Engineers, Dallas, TX, May 7-10, 1990 (presented by P.E. Koch).
- "Frictional Heating in Runners for Enhanced Thermoset Molding," J.P. Beaumont, P.E. Koch, and R. Farrell, 48<sup>th</sup> Annual Technical Conference of the Society of Plastics Engineers, Dallas, TX, May 7-10, 1990 (presented by J.P. Beaumont).
- "A Silane Coupling Agent for Commercially Bonding Dissimilar Thermoset Materials," P.E. Koch and J. Schenck, Silanes and Other Coupling Agents, A Symposium Honoring Dr. Edwin P. Plueddemann, organized by Dow Corning and the Journal of Adhesion Science and Technology, Midland, MI, April 3-5, 1991 (presented by J. Schenck).
- "Novel Uses of Paper/Plastic in Recycled Applications," P.E. Koch, J.P. Beaumont and R.E. Farrell, Regional RETECH, Ontario Canada Section of the Society of Plastics Engineers, Toronto, Canada, April 9-10, 1991 (presented by L. Dzeskiewicz).
- "Performing an Energy Audit on an Injection Molding Process," R.E. Farrell, J.P. Beaumont and P.E. Koch, 49<sup>th</sup> Annual Technical Conference of the Society of Plastics Engineers, Montreal, Canada, May 5-9, 1991 (presented by R.E. Farrell).
- "The Development of a Newsprint and Polyolefin Composite and Processing System," P.E. Koch, and L. Dzeskiewicz, the American Institute of Chemical Engineers National Meeting, New Orleans, LA, March 29-April 2, 1992 (presented by P.E. Koch).
- "Commercial Combination of Polyolefins and Newsprint with Coupling Agents," P.E. Koch, the Engineering Division of the American Chemical Society Symposium, Washington, D.C., August 25-27, 1992.
- "Recent Changes in Plastics Technology," Emerson Polymer Technology Forum, Emerson Electric, Columbus, OH, September 23-24, 1997.
- "Advances in Engineering Polymers-Syndiotactic Polystyrene," North American Advanced Materials Center Technology conference, Battelle Lab, Columbus, OH, November 11-12, 1997.
- "Emerson Polymer Technology Forum Presentation on New Families of Commercial Polymers (2000).
- "Developing Next Generation Power Systems." P.E. Koch, Intelec Conference, Phoenix, AZ, September 12-14, 2000.

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