

Jennifer M. Hoffman, Ph.D.
Manager

Professional Profile

Dr. Jennifer M. Hoffman is a Manager in Exponent's Mechanical Engineering and Materials practice. Her expertise includes polymer technology, mechanics of materials, adhesion science, product development support, and failure analysis related to plastic materials. She specializes in the characterization and testing of polymeric materials and has performed research in the area of structure-property relationships of thermoplastics, thermosets, polymer composites, and rubber materials. She consults on issues involving application-specific selection and use of polymers based on design, manufacturability, material properties, and compatibility with end-use environment.

Dr. Hoffman has specific experience identifying candidate materials for new product designs, processing of phenolic compounds, and failure analysis of consumer products, consumer electronics, plastic pipe, and medical device components. She has evaluated injection-molded parts; glass-reinforced polymers; adhesives and coatings; ultrasonic, chemical and thermal welds; and rubber products including O-rings, gaskets, hoses, and flooring material. She has performed fractography, mechanical property evaluation, thermal analysis, and chemical analysis on numerous polymeric components as part of root cause analyses.

Dr. Hoffman teaches a short course as part of ASM International's Materials and Processes for Medical Devices Education Program and is Vice President of the Golden Gate Section for the Society of Plastics Engineers.

Prior to joining Exponent, Dr. Hoffman was an engineer at Procter & Gamble, where she was involved in technology development, materials selection, and prototype characterization for cosmetics applications.

Academic Credentials and Professional Honors

Ph.D., Materials Engineering Science, Virginia Polytechnic Institute and State University, 1999
B.S.E., Materials Science and Engineering, University of Michigan, 1994

Publications

Hoffman JM, Reitman M, Donthu S, Ledwith P, Wills D. Microscopic characterization of CPVC failure modes. Proceedings, ANTEC 2009, Society of Plastics Engineers, Chicago, IL, June 2009. Best Paper Award in Failure Analysis & Prevention.

Hoffman JM, Reitman M, Ledwith P. Characterization of manufacturing defects in medical balloons. Proceedings, ANTEC 2008, Milwaukee, WI, Society of Plastics Engineers, May 2008.

Reitman M, Ledwith P, Hoffman JM, Moalli J, Xu T. Environmentally driven changes in nylon. Proceedings, ANTEC 2008, Milwaukee, WI, Society of Plastics Engineers, May 2008.

Hoffman JM, Sjong A. ESC failure of polycarbonate components: two case studies. Proceedings, ANTEC 2006, Charlotte, NC, Society of Plastic Engineers, May 2006.

Reitman M, Hoffman JM. Protective coatings for implantable medical devices. Proceedings, ANTEC 2005, Boston, MA, Society of Plastic Engineers, May 2005.

Hoffman JM, Reitman M, Moalli, J. Application of TMA for determination of in-service exposure temperatures in thermoformed sheets. Proceedings, NATAS 32nd Annual Conference, Williamsburg, VA, October 2004.

Presentations

Hoffmann JM. Failure analysis of polymers in product design. Cabrillo College, ENGR 45-Engineering Materials lecture, Aptos, CA, December 2009.

Hoffmann JM. ANTEC 2009 CPVC paper presentation and tutorial. Society of Plastics Engineers Golden Gate Section monthly meeting, November 2009.

Hoffmann JM. ESC of CPVC fire sprinkler pipe. Failure Analysis & Prevention tutorial session, ANTEC 2009, Society of Plastics Engineers, Chicago, IL, June 2009.

Hoffmann JM. Polymer considerations for medical device design. ASM International, Materials and Processes for Medical Devices seminar, various locations, May and November 2009, May–September 2008.

Hoffmann JM. Failures of polymeric hip implant components. ASM International, Materials and Processes for Medical Devices Conference – Opportunities for Next-Generation Implants, Cleveland, OH, August 2008.

Hoffmann JM, Ralston B. Polymer failure analysis for medical devices, consumer electronics and consumer products. Society of Plastics Engineers Golden Gate Section monthly meeting, February 2009.

Hoffmann JM. Introduction to polymers for medical devices. ASM International, Materials and Processes for Medical Devices seminar, various locations, March–December 2007.

Hoffmann JM, Sjong A. Polymers for medical device design. ASM International, Materials and Processes for Medical Devices seminar, various locations, June–December 2006.

Hoffmann JM. Polymer science considerations for biomedical products: Structure-property relationships. Presentation given to a medical device client, April 2002.

Hoffmann JM. Solvent-induced crystallization of PEEK: Sorption, crystallization, and dynamic mechanical properties. 6th Japan SAMPE International Symposium and Exhibition, JISSE-6 Student Symposium, Tokyo, Japan, October 1999 (Guest student speaker).

Solvent-induced crystallization of Poly(ether ether ketone): Solvent effects on the sorption, crystallization, and mechanical properties. SAMPE International Student Symposium, Long Beach, CA, May 1999 (First place award in the Ph.D. category).

Professional Affiliations

- Society of Plastics Engineers—SPE
 - Failure Analysis & Prevention Special Interest Group Secretary (Present)
 - Golden Gate Section Vice President (Present)
 - ANTEC paper reviewer (2008–Present)
 - Golden Gate Section Director (2008–2009)
- ASM International
 - Education Committee (2009–Present)
 - Materials for Medical Devices Database Committee (2008–Present)

Depositions

Alice Holmes and Vernon Holmes v. Home Depot USA, Inc., et al., United States District Court, Eastern District of California, Case No. 1:06-CV-01527-SMS, July 2009.

Oak Grove Construction v. Soil Stabilization Products Company, Inc., et al., County of Napa, CA, Case No. 26-38291, September 2008.

Lanette Sipes et al. v. Foothill Skate Inn, Inc. et al., Sacramento County, CA, Case No. 05AS04668, April 2008.

S&F Farms v. Dompe Warehouse Supply Co., et al., Stanislaus County, CA, Case No. 375123, June 2007.

Arena Development Group, LLC v. Mondo America, Inc., Los Angeles, CA, Case No. BC 294 060, March 2005.

Edwin Campos, et al. v. Frigidaire Home Products, et al., Los Angeles, CA, Case No. BC 282606, February 2005.

Athletica, Inc. D/B/A Crystaplex v. Arena Development Group, LLC, Los Angeles, CA, Arbitration Case No. 50 T 181 00401 1, September 2002.

Trials and Arbitrations

Grace Label, Inc. v. Steve Kliff d/b/a Steve Kliff & Associates, United States District Court, Southern District of Iowa, Central Division, Case No. 4:02-CV-10538, April 2005.

Athletica, Inc. D/B/A Crystaplex v. Arena Development Group, LLC, Los Angeles, CA, Case No. 50 T 181 0040 1, April 2003.