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Engineering & Scientific Consulting

Davis Lee, Ph.D.

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Professional Profile

Dr. Lee's expertise is in chemistry and polymer science where he has over 35 years of product development experience in textiles, plastics and specialty chemicals. This spans a wide array of products and industries including synthetic turf, carpet, non-wovens, apparel, protective fabrics, industrial fibers and fabrics, pigments and additives, fiber and fabric finishes, polymer compounding, advanced composites, elastomeric composites, and adhesives.

Dr. Lee is also well acquainted with various manufacturing operations in textiles, films and plastics. He assists clients with product design, prototype development, scale-up, commercialization, intellectual property development and failure analysis.

Dr. Lee has extensive experience in polymer synthesis, fiber formation, polymer and fiber characterization and various fabric formation technologies. He has developed products and diagnosed product failures in fibers, woven and knitted fabrics, nonwovens, carpet, synthetic turf, composites, film, adhesives and plastics.

Dr. Lee has served on various trade association, academic and advisory boards and as an adjunct professor at the Georgia Institute of Technology.

Prior to joining Exponent Dr. Lee worked with large, medium and small sized firms in both technical and management positions. In his various roles Dr. Lee has developed a keen ability to apply science in the development of new products and in the diagnosis of product failures.

Academic Credentials & Professional Honors

Ph.D., Chemistry, Emory University, 1981

Grant-in Aid of Research - Sigma Xi, The Scientific Research Society

Outstanding Young Alumni, Georgia College and State University

Engineering Excellence Award, E. I. DuPont DeNemours and Co., Inc.

Marketing Excellence Award, E. I. DuPont DeNemours and Co., Inc.

Professional Affiliations

Society of Plastics Engineers (member)

American Chemical Society (member)

Patents

Patent Application 62/259,882: Compostable Composition, filed November 25, 2015.

Patent Application 62/053,717: System and Method for Improving Fuel Storage Within a Wing of an Aircraft, filed September 22, 2014.

Patent Application 14/176,012: Method and System for Forming a Self-Sealing Volume Using a Breather System, February 7, 2014.

Patent Application 13/796,878: Method and System for Forming a Self Sealing Volume, filed March 12, 2013.

Patent Application 13/796,775: Method and System for Forming a Self Sealing Volume, filed March 12, 2012.

Patent Application 13/534,992: Synthetic Turf System Made with Antistatic Yarns and Method Of Making, filed June 27, 2012.

Patent 9,194,086: System and Method for Absorbing Shock/Impacts While Providing Water Drainage, issued January 16, 2013.

Patent 6,367,109: Floor Cleaning Apparatus Having a Floating Brush, issued April 9, 2002.

Patent 5,239,019: Modified Hydrophilic Polyesters, issued August 24, 1993.

Patent 5,263,308: Method for Ply-Twisting Yarns Having Low Levels of Finish, issued November 23, 1993.

Publications

Lee DE. Surfactants in spin finishes. International Fiber Journal 1991 Aug; 94-100.

Lee DE. Protection of a substituted catechol whose derivatives are subject to steric Labilization. Journal of Organic Chemistry 1982; 47:731-734.

Lee DE. Toward the total synthesis of Quassin. Journal of Organic Chemistry 1982; 47:610-615.

Lee DE. Toward the total synthesis of Quassin. Dissertation, Emory University, 1981.

Lee DE. 4,5-benzo-1,2,4,5-cycloheptatetraene. Journal of Organic Chemistry 1977; 42:3460-3462.

Trade Articles

Lee DE. With all the evidence, there is little question that synthetic turf is safe. Athletic Facility Design 2009 June.

Lee DE. Asset Preservation. Buildings Magazine 2000 Aug; 26.

Selected Invited Presentations

Lee DE. Innovation driven business. Presented at El Poder de las Ideas y el Coraje Emprendedo, Cochabamba Bolivia, January 2013.

Lee DE. Innovation driven success. Presented at the ForeverLawn Dealer Conference, January 2012.

Lee DE. Innovation in synthetic tur. Presented at the ForeverLawn Dealer Conference, January 2010.

Lee DE. The future of materials in flooring, a look at the possibilities for new functionalities. Presented at the Polymer Science and Engineering Workshop, December 2010.

Lee DE. Successful innovation. Presented to JC Penney, July 2010.

Lee DE. Synthetic turf. How safe is it? Presented to the Synthetic Turf Council, October 2009.

Lee DE. Polymers, past present and future. Presented to Printpack, Inc., October 2008.

Lee DE. Using 3P in new product development. The Association for Manufacturing Excellence, Annual Conference, 2004.

Lee DE. Approach to installation, maintenance and reclamation. 38th International Man-Made Fibres Congress, Dornbirn Austria, September 1999.