

UNH Materials Science Seminar

13:10-14:00, Wednesday, April 28, 2010

DeMeritt Hall 240

University of New Hampshire

Chemistry and Applications of Hydroxyl-Terminated Polybutadienes

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Polyurethanes based on polybutadiene polyols are known for excellent hydrophobicity, hydrolytic and chemical resistance, electrical insulation properties, and low-temperature flexibility. They have been used in solid rocket propellant, insulated glass sealants, water membrane and electronic encapsulants, among others.

Until recently, the commercially available hydroxyl-terminated polybutadienes Polybd[®] resins have been manufactured by a free-radical polymerization technology. This technology yields polyols with functionalities higher than 2.0. The new Krasol[®] polybutadiene diols are anionically polymerized products with very narrow molecular-weight distribution containing no species with functionality higher than 2.0. They are ideal candidates for making stable prepolymers and also thermoplastic polyurethanes. Their polyurethane copolymers with polyether and polyester polyols as well as their blends with polypropylene will be discussed.

Herbert Chao received his Ph.D. in Organic Chemistry from Massachusetts Institute of Technology. After graduation, followed by one-year postdoctoral research at MIT, he had worked at Union Carbide Co., and then General Electric Co. on various aspects of engineering plastics. Since 2001, he has been with Sartomer Co., a subsidiary of Total, as the technical manager in charge of developing applications for polybutadiene materials. Recently he becomes Innovations Manager for Cray Valley USA, LLC of Total. Herbert has authored more than 30 technical papers in scientific journals and held 40 U.S. patents.

Host: Prof. Marshall Ming, ×1446