

**SOCIETY FOR THE ADVANCEMENT
OF MATERIAL AND PROCESS
ENGINEERING
NEW JERSEY CHAPTER**

**DECEMBER NEWSLETTER & MONTHLY NOTICE
DECEMBER 3, 2009 (1ST THURSDAY)**

**IMMISCIBLE POLYMER PROCESSING TO PRODUCE
STRUCTURAL MATERIALS FROM PLASTIC WASTE**

**DR. THOMAS J. NOSKER
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MEETING DETAILS

Place: Bridgewater Manor, Bridgewater, NJ; (908) 658-3000
Time: 5:30 Cocktails (Cash Bar); 6:15 Dinner; 8:30 Adjourn
Cost: \$10.00 Advanced Registration; \$15.00 at Door; Students - Free

This meeting is open to all SAMPE members, spouses, guests, and other interested parties

Reservations please contact John Osterndorf at 973-248-5885 or by email at sampejohn@yahoo.com
by noon the Wednesday before the meeting.

Directions to Bridgewater Manor: From I-287 north, take exit 22A (206 south). Go thru two lights, Bridgewater Manor is on right. From I-287 south, take exit 22. Make right at end of ramp. Make next left, a jughandle to cross 202/206 to go south on 202/206. Go thru three lights, Bridgewater Manor is on the right.

SAMPE Best Chapter Award Winner:

1990, 1991, 1992, 1993, 1995, 1996, 1997, 1998, 1999, 2000, 2001

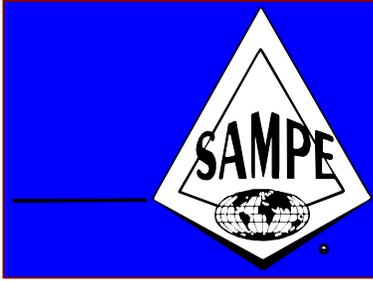
SAMPE Chapter Service Excellent Award Winner:

2002, 2003, 2004, 2005, 2006 (award suspended after 2006)

Conferences Sponsored:

ISS&E – 1996, 1998, 2002

ISTC – 1981, 1989, 2006, 2009



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2009 – 2010 MEETING SCHEDULE

September 10, 2009 – NDE of Multilayered Composites, Nicholas Gianaris, General Dynamics Land Systems, Sterling Heights, MI	March 4, 2010 – TBD
October 1, 2009 – Development and Testing of Prestressed Carbon Fiber Composite Overwrapped Gun Tubes, A. G. Littlefield, Benet Laboratories, Watervliet, NY	April 1, 2010 – TBD
October 19 – 22, 2009 41 st International SAMPE Technical Conference, Wichita, KS, Sponsored by the New Jersey and Wichita Chapters	May 6, 2010 – TBD
November 5, 2009 – UV Curing Technology Overview and Applications in Composite Structures, Jim Wittig- President- ACTEGA Radcure, Inc	May 17 – 20, 2010 – 54 th International SAMPE Symposium & Exhibition, Washington State Convention Center, Seattle, WA Sponsored by Seattle Chapter
December 3, 2009 – Immiscible Polymer Processing to Produce Structural Materials from Plastic Waste, Dr. Thomas Nosker- Research Professor – Rutgers University	June 3, 2010 – TBD
February 4, 2010 – High Performance Thermoplastics, Larry Stanislow- Sales manager- Westlake Plastics	July 8, 2010 – 27 th Annual NJ SAMPE Golf Tournament, Picatinny Arsenal, NJ

Notes The NJ Chapter sponsors a student chapter at Drexel University.

NOVEMBER MEETING

At the November meeting, Mr. James Wittig gave an excellent presentation entitled UV Curing Technology Overview and Applications in Composites Structures. The New Jersey Chapter wishes to thank Mr. Wittig for the excellent presentation.

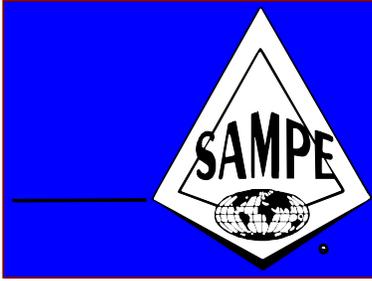
UPCOMING EVENTS

2010 SAMPE International Symposium and Exhibition, Washington State Convention Center, May 17 – 20, 2010, Seattle, WA.

The Seattle SAMPE Chapter is sponsoring the 2010 ISS&E.

2010 International SAMPE Technical Conference, Salt Palace Convention Center, Salt Lake City, UT October 11 – 14, 2010

The Utah Chapter is sponsoring the 2010 ISTC.



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IMMISCIBLE POLYMER PROCESSING TO PRODUCE STRUCTURAL MATERIALS FROM PLASTIC WASTE DR. THOMAS J. NOSKER, PROFESSOR DEPARTMENT OF CERAMICS AND MATERIALS ENGINEERING RUTGERS UNIVERSITY

ABSTRACT: High-density polyethylene (HDPE) based recycled plastic lumber (RPL) emerged in the United States marketplace in the early 1990's. RPL is an attractive substitute for natural wood because it diverts waste plastics from landfills, is inherently resistant to moisture, rot, and insects, does not require poisonous chemical treatments, and reduces deforestation that results in an advantageous environmental impact. These original RPL products have similar strength values to equivalent-sized wood lumber. However, the elastic modulus (stiffness) of the original RPL products is at least an order of magnitude less than even the most common wood species used in construction and RPL suffers from significant creep at stresses of 100 psi or less. Eventually, manufacturers produced reinforced thermoplastic composite lumber (RTCL) with higher elastic modulus and creep resistance by incorporating reinforcing agents within the RPL matrix, such as fibers, or by making immiscible polymer blend composites (IMPB). Further advancements utilizing specialized processing methods resulted in nano-structured morphologies of the IMPB composites with enhanced mechanical properties, including increased toughness without sacrificing modulus or strength.

The first vehicular bridge composed of RTCL with typical rectangular cross sections was built at a mid-west Army Installation in 1998. To date, this bridge has not required any maintenance and looks like new. When viewed on a lifecycle cost basis, this bridge has now more than paid for its higher initial material costs. However, initial costs are still most often the deciding factor for material selection (i.e. substituting RTCL over traditional chemically treated-wood). Since 1998, researchers and engineers have sought construction designs using RTCL that are cost competitive to traditional chemically treated wood designs on a first-cost basis. Thus, arch and I-beam cross section designs were investigated as a means to reduce the material and installation costs for a given load capacity. The latest demonstration of this sort is a RTCL bridge with an I-beam substructure having a maximum load capacity sufficient to handle an M-1 Abrams tank (71 tons) constructed at an east coast Army Installation. This innovative design is cost competitive with a wood timber bridge designed to carry the same load. However, the RTCL I-beam substructure bridge is virtually maintenance-free and is not subject to degradation effects of moisture, rot, insects, and weather.

BIOGRAPHY: Dr. Nosker received a Bachelors degree in Mechanical Engineering from Georgia Tech, and a M.S. and Ph.D. in Mechanics and Materials Science from Rutgers University. He has worked on plastics recycling and immiscible polymer processing and behavior since the mid-1980's. He was awarded the New Jersey Technology Council's Thomas Alva Edison award in 2001 in the area of emerging technologies.



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MEET OUR SPONSOR – EVONIK INDUSTRIES

Evonik Industries Builds Presence at SAMPE Fall Technical Conference

At this year's record-breaking SAMPE Fall Technical Conference in Wichita, KS, Oct. 19-22, 2009, Evonik Industries, a leading global specialty chemicals manufacturer, gained newfound exposure to the advanced composites industry. Prior to Wichita, Evonik and its affiliates attended or exhibited at SAMPE, but without a unified presence. ROHACELL®, Evonik's methacrylamide structural foam, has been eminent over the years, but the depth of Evonik's products and services was never fully recognized. At this Fall's conference, Evonik remedied this by showcasing all of its technologies including

CALIDUR™ Polyarylether Amides
COMPIMIDE® Bismaleimides
EUROPLEX® Polyphenylsulfones
SOLIMIDE® Polyimide Foams
VESTAKEEP® Polyetheretherketones
VESTAMIN® Isophorone Diamine Curatives
VESTANAT® Isocyanate Crosslinkers

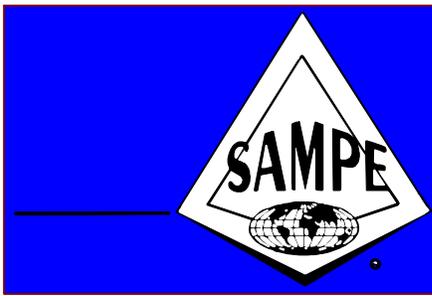
as well as a portfolio of intermediates including SPECIALTY ANHYDRIDES for polyimide and epoxy applications. Evonik's Industrial Chemicals, Health & Nutrition, Coating & Additives and Performance Polymers business units were all represented and joined to engage the composites community. Evonik recently formed a Composites Industry Team to further coordinate its efforts and simplify the customer experience.

Evonik also contributed with a session chair as well as four technical papers

Recent Developments in Polyarylether Amide Resin Technology - Albert von Itter, Borys Schafran
Specialty Building Blocks for Composites, Karana Shah - Thomas Sauer, Jeff Dimmit
Specialty Anhydrides for High Performance Composites - Karana Shah
COMPIMIDE P500: A New Bismaleimide Powder for Advanced Composites - Sergey Evsyukov et al

The coffee sponsorship was the final touch and well-received by the attendees.

On behalf of all of my colleagues at Evonik, I wish to thank the SAMPE organization, with a special recognition of the NJ and Wichita chapters, for enabling us to increase our brand awareness and intermingle with the composites industry in such a productive and successful way. Sincerely, Borys Schafran



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CORPORATE SPONSORSHIP

The New Jersey Chapter is inviting your company to be a Corporate Sponsor of the Chapter. By being a corporate sponsor, your company enables the chapter to continue its educational endeavors such as the Bridge Building Contest at the SAMPE Symposium and Exhibition and hold monthly technical meetings. The New Jersey Chapter sponsored the 2009 Fall Technical Conference with the Wichita Chapter in October 2009 in Wichita, KS. In addition, your contribution enables the chapter to publish the monthly newsletter, conduct one day seminars and sponsor international conferences and exhibitions. These activities have helped the chapter become one of the best chapters in SAMPE.

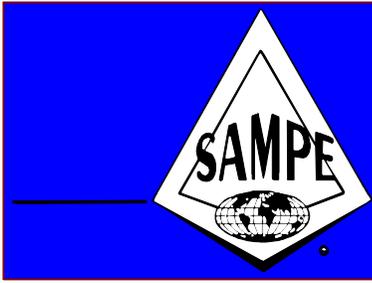
During the current fiscal year, the chapter has planned a variety of topics to be presented at our monthly meetings. These topics include: NDE of Multilayered Composites, Development and Testing of Prestressed Carbon Fiber Composite Overwrapped Gun Tubes, UV Curing of Polymers, PET Extrusion of Recycled Plastics for Railroad Ties and Bridge Beams and High Performance Thermoplastics. Also, the Chapter will hold its 27TH Annual Golf Tournament on July 8, 2010 at the Picatinny Arsenal Golf Course in New Jersey.

In addition, the Chapter has revised its newsletter to provide greater recognition of its sponsors. A sponsor's corner has been included for sponsors to highlight new product announcements, new business activities, processes and informative information concerning your company. Please submit any items for inclusion in the newsletter to me by email at sampejohn@yahoo.com.

The New Jersey Chapter of SAMPE is currently in the process of developing a web site. The web site is being planned as a service to the members to provide additional information including all Chapter Newsletters, the Chapter's History and By-laws. There will also be a pages and links where the Chapter Sponsors can post expanded information concerning their company and product lines. Additional information concerning this page will be available shortly.

If your company has any interesting topic or speaker for a future meeting, please notify me and the chapter will try to arrange the presentation in the near future.

If you have any questions, regarding corporate sponsorship, please email me at sampejohn@yahoo.com.



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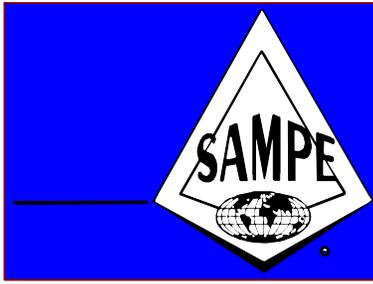
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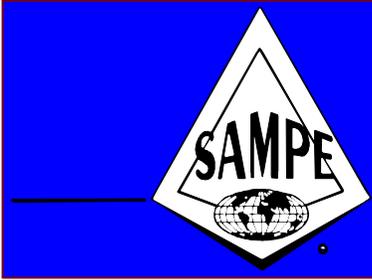
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