

NEWSLETTER

December, 2012

Society for the Advancement of Materials and Process Engineering New Jersey Chapter 35th Anniversary



We are Pleased to Present the Featured Guest Speaker for our December 6th Meeting:

Stress Rupture Failure of a Continuous Fiber Composite Water Holding Tank

John DeFranks
IMR Test Labs
Lansing NY

ABSTRACT

Stress rupture failure of a large (20 foot diameter, 24 foot high), continuous fiber composite water holding tank occurred just hours after the initial fill at a power plant. The manway, located near the bottom of the tank, completely separated at the tank-to-manway joint. Furthermore, the pressure resulting from water rushing out of the tank caused extensive secondary damage to the upper portions of the composite tank, which collapsed inward. The failure resulted in significant schedule delays and repair costs. The tank was fabricated from a fiberglass / vinyl ester system and the manway was attached using a fiberglass / epoxy system. Extensive visual examination, thermal analysis, chemical analysis, mechanical testing, and materialography were performed to characterize the tank failure.

BIOGRAPHY

John holds a B.S. in Applied Physics from the State University of New York at Geneseo, and a M.S. in Materials Science and Engineering at the Rochester Institute of Technology. John initially started at IMR in the Nonmetallics department and has since developed a variety of test procedures while overseeing IMR's composite testing capabilities. Past projects include polymer testing, material identifications, failure analyses and long-term test plan design and execution for clients ranging from the consumer product industry to aerospace.

MEETING DETAILS

Place: Bridgewater Manor, Bridgewater, NJ; (908) 658-3000

Time: 6:15 – 8:30

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:



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2012 – 2013 Meeting Schedule

September 8, 2012 – Multi-Scale Modeling and Penetration Mechanics of Composites, Bazle Z. Haque, University of Delaware Center for Composite Materials

October 22 – 25, 2012 – 44th ISTC, Charleston, SC. NJ Chapter Sponsor.

December 6, 2012 – Stress Rupture Failure of a Continuous Fiber Composite Water Holding Tank, John DeFranks, IMR Test Labs

February 7, 2013 – Anand Rau, Toray Carbon Fibers

March 7, 2013 – TBD

April 4, 2013 – TBD

May 2, 2013 – TBD

May 6-9, 2013 – 57th ISEE, Long Beach Convention Center, Long Beach CA

June 6, 2013 – TBD

July , 2013 – 30th NJ SAMPE Golf Tournament, Picatinny Arsenal



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

SAMPE Chapter Service Excellence Award Winner:

2002, 2003, 2004, 2005, 2006 (award retired
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SAMPE Chapter Sponsored Conferences:

ISSE – 1990 (Anaheim), 1994 (Anaheim),
1996 (Anaheim), 1998 (Anaheim), 2002 (Long Beach)

ISTC – 1981 (Mt. Pocono), 1989 (Atlantic City),
2006 (Dallas), 2009 (Wichita), 2012 (Charleston)

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Fabric Development Inc.

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Spotlighting General Magnaplate Corporation

General Magnaplate Corporation, Linden, New Jersey has been a supporter of NJ SAMPE since 1989. The “World Leader in providing Engineered Coatings solutions” is celebrating its 60th year in business. The company has been instrumental in providing material engineering solutions to a variety of industries including, food, packaging, military, energy, electronics, and aerospace just to mention a few. Of note are the contributions to mission critical issues associated with the space program. For example, on the Apollo 11 mission, General Magnaplate coatings were used to prevent galling at the joints and in the drive shaft of titanium core sample drill tubes. On Apollo 13, The LEM’s fuel valve, coated with TUFAM[®], operated far beyond rated capacity and brought the astronauts home safely. And most recently, General Magnaplate coatings were used to provide wear resistant, contamination-free coatings

on the shaft and cutter cups used on Curiosity’s trip to Mars to collect samples from the red planet. General Magnaplate continues to stretch the boundaries of engineered coatings by developing new surface enhancement solutions including advancements in tooling, nano technologies and antimicrobial properties. Edmund Aversenti, President/COO of General Magnaplate Corporation states “General Magnaplate is extremely proud of its relationship with NJ SAMPE. The organization, over the years has been a valuable resource for keeping current on advancements and developments in the materials and processing fields. In addition, we have been given opportunities to give back to the community by sponsoring programs and giving tours of our facility”

