



# PEEK in the Oil Patch

*Metal Alternative:  
Process-Optimization of PEEK properties*



South Texas Society of Plastic Engineers  
November 5<sup>th</sup>, 2009  
Joint Technical Meeting



The American Institute of Chemical Engineers and the South Texas Section of the Society of Plastic Engineers will be co-hosting a technical meeting On thermoplastics in the oilfield industry. Dr. Alan Wood, the Principal Scientist in the Global Applied Technology team at Victrex Headquarters, UK, will be preset topics on the Optimization of the properties of PAEK, the applications and the developing technologies. In addition to the Keynote speaker, break-out sessions presented by other speakers will be held before dinner. These sessions will include Thermoplastic Composites and Pipe as well as Refrigerated Vapor Recovery Systems and Resume Design. See the schedule below for details.

Due to the joint nature of this event, our pricing schedule has changed.

Members: \$15 Pre-registered, \$25 at the door.  
Students & Unemployed Members: \$10 Pre-registered, \$20 at the door.

Non-members please add \$10 to the appropriate cost above

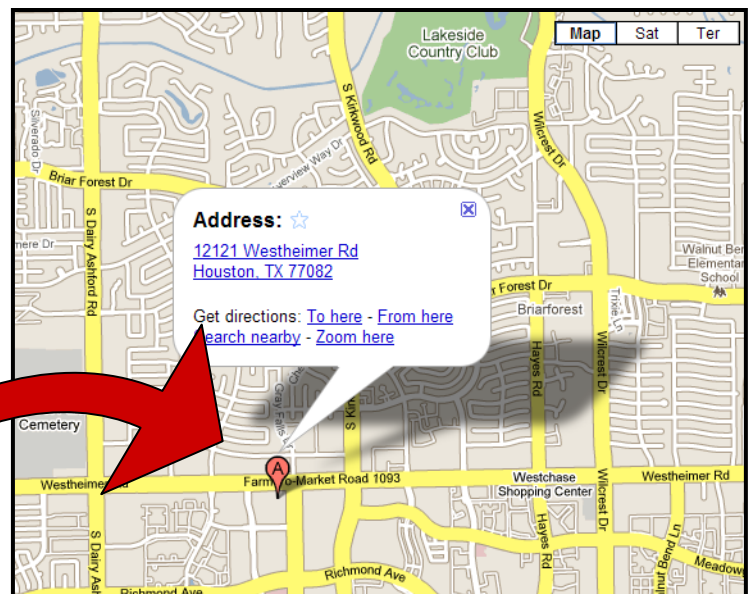
To save on your cost for this event, please register online.  
Use the appropriate registration link at <https://www.spe-stx.org>

### Schedule:

- 5:30 to 6:30 – Break-Out Sessions
- 6:30 to 7:00 - Networking and Socializing
- 7:00 to 7:45 - Dinner
- 7:45 to 8:15 - Announcements and Awards
- 8:15 to 9:00 - General Presentation
- 9:00 to ? - Questions



12121 Westheimer Ste. 130  
Houston, TX 77077





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## Keynote Presentation

### *Optimizing the properties of*

### *Polyaryletherketones materials as a polymeric alternative for metal replacement*

Dr. Alan Wood

Poly(aryl ether ketones) [PAEKs] are a range of thermoplastics with truly outstanding all-round performance. The factors which determine the selection of PAEKs over other materials will be considered in the context of the general properties of these materials, specific examples will be used as illustrations. PAEKs are often seen as metal-replacement materials and some current developments at Victrex will be reviewed which are aimed at furthering the penetration of PAEKs into applications which would normally be considered to be the domain of metals. The properties of a finished product made from a thermoplastic often depend heavily on the technique of manufacture. The developments showcased in this presentation will involve novel processing techniques aimed at optimizing the properties of PAEK.

## Break-out Session I

### *Polyetherketone PEEK Composites: The benefits over thermosets and an introduction of novel processes.*

Dr. Alan Wood

The benefits of continuous-fibre composites are well known but the market has been largely dominated by thermosetting materials. This session intends to briefly review the history of PEEK-based thermoplastic composites, consider their advantages over thermosets and examine some of the perceived problems related to processing high-performance engineering thermoplastics in composites. Novel processing technologies currently being developed at Victrex will be reviewed.

## Break-out Session II

### *Polyetherketone PEEK Pipes: The next generation pipe technology for superior reliability under harsh conditions.*

Bill Pernice

As the industry moves to more aggressive and demanding operating environments, technology will play a significant role in the drive to reduce the overall cost of hydrocarbon recovery. The selection of the correct material is a key component towards the failure or success of overcoming these technical challenges. The role of high performance materials is becoming increasingly important in the design and development of applications ranging from seal rings and downhole electrical connectors to electrical cables and pipe. We will take a closer look at innovative piping solutions delivered to the oil and gas industry, as well as ideas for emerging applications.

## Break-out Session III

### *Purgit Emission*

Townsend Hilliard

This is a short review of refrigerated vapor recovery including its benefits and limitations and brief comparison to combustion systems. The technology has various industrial applications (tank degassing and tank loading). The regulatory compliance issue associated with various degassing application will be discussed.

## Break-out Session III

### *Resumes and CEO with Red Murphy*

## Biographies

### *Dr. Alan Wood*

Alan graduated in 1974 with a degree in Polymer Science and Technology (Chemistry) and started his professional career working for a company which manufactured a broad range of plastics and rubber processing equipment. After eight years as an engineering apprentice Alan moved into academia at the University of Manchester, UK, progressing to Senior Lecturer before joining Victrex plc in August 2003. Whilst working at the University, Alan's main interests lay in polymer processing, in particular in melt temperature determination. Alan is currently the Principal Scientist in the Global Applied Technology team at Victrex Headquarters, UK.

### *Bill Pernice*

Bill graduated in 1987 with a BS in Biochemistry and then completed his MBA 1990 at the University of Houston. Bill started his career with Belleli an oil and gas service company involved in the manufacture of HPHT pressure vessels and offshore platforms. Bill then moved on to Arkema in the Technical Polymers group progressing from Technical Sales to Global Marketing Manager handling various fluorinated and polyamide product lines. After eight years with Arkema Bill joined Victrex and is now the Emerging Market Development Manager responsible for developing VICTREX® PEEK™ pipe business opportunities and applications throughout the Americas.

### *Townsend Hilliard*

Townsend graduated from Texas A&M in 2003 and have been working with Purgit helping to develop the process of mobile units. A year ago, Townsend switched to a marketing role to bring in new customers. In addition, he has been an active participant in tank degassing regulation using closed loop system and technology development for tank/ship/barge loading applications.