

# Workshop on Future Needs for Service Life Prediction of Polymeric Materials

## **Purpose:**

The objectives of this workshop are to identify gaps and future needs for service life prediction of polymeric materials. Topics will span knowledge of fundamental understanding, needed tool development, implementation of changes to current processes, and linkage to overall goals of development of next generation service life prediction. These focus areas will be illustrated with case studies from several industries highlighting the critical need for service life prediction. These include:

- Wire and cable
- Photovoltaics
- Roofing
- Composites
- Appliances

The workshop will begin on noon, Wednesday, October 24th in Gaithersburg MD and finish by noon, Friday October 26th. The schedule will include keynote presentations and break-out discussion sessions, and conclude with a session integrating lessons learned and development of a path forward.

## **Agenda:**

### **Wed Afternoon: Overview of Current Challenges**

- 12:00-12:30 Introductions, Welcome
- 12:30-1:15 Overview of Service Life Prediction for Polymers - Chris White (NIST)
- 1:15- 2:00 Progress on UL 746B, Long Term Thermal Aging (LTTA): Tool Development - Tom Chapin (UL)
- 2:00- 2:45 Progress on UL 746B, LTTA: Process for Implementing Changes - George Fechtmann (UL)
- Break. 2:45- 3:15
- 3:15-4:00 Failure Analysis Tools - Maureen Reitman (Exponent)
- 4:00- 4:45 Matt Celina- Polymer Rapid qualification versus the science of polymer degradation, can standard tests be a compromise?- Sandia National Laboratory
- 4:45-5:15 Wrap up.

### **Thursday Morning: Case Studies**

- 9:00-9:30 Photovoltaics, Progress for Service Life Prediction Methods – Xiaohong Gu (NIST)
- 9:30-10:00 Wire and Cable Aging in Nuclear Power Plants - Stephanie Watson(NIST)
- 10:00- 10:30 Professor A. Chudnovsky, Univ. of Illinois at Chicago, Accelerated Testing and Lifetime Assessment for Engineering Thermoplastics.

Break 10:30-11:00

- 11:00-11:30 Robert Lawton, DuPont, The Management of Polymer Variations
- 11:30- 12:00 Flat Slope Roofing - Chris White (NIST)

Lunch 12- 1:30

### **Thursday Afternoon: Breakout Sessions 1:30- 5:00**

**1:30- 3:30,**

**3:30-4 Meet back for progress reports. Group Discussion**

**4:00-5:00 Breakout.**

- Fundamentals of Polymer Science
- Application Specific Needs
- Tool Development
- Process Development

**Friday Morning: Integration of Lessons Learned and Path Forward 8:30- 12:00**

**Wrap up, Ajourn 12 N.**