



Thermosets; Chemistry, Characterization, Properties, and Processing

Presented by R. Bruce Prime, Ph.D. and Jeffrey Gotro, Ph.D.

Overview

Thermoset University has developed a comprehensive short course on thermosets specifically designed to be customized for **in-house corporate training** programs. If your company currently works with adhesives, composites, coatings, laminates, fiberglass materials such as sheet molding or bulk molding compounds, resins transfer molding, or autoclave molding, then this course will enhance your employee's technical understanding and skills in thermosets. The training is modular and customizable for individual company's needs and technology.

A three-day comprehensive short course on thermosetting polymers covers a wide range of important topics from chemistry, characterization, rheology, and processing. The first day will provide a foundation in the key aspects of thermoset curing and characterization. From this base, the second day will cover in more depth important aspects of advanced cure chemistry, cure kinetics, and rheology. The third day will tie everything together in a discussion of the important topic of thermoset processing.

We will have case studies in small break out groups facilitated by the course instructors on each day to help you put into practice what you learned in the seminars. The course will be delivered by leaders in the field of thermosets who have a large amount of scientific and application experience. In all the presentations, practical examples will be presented to help solidify your understanding of the topics presented.

The three-part series is given over three days and is geared toward technical professionals with backgrounds in chemistry, engineering, or materials science. The topics are organized so you can take one day, two days, or the complete three day short course.

Course Schedule

Day One: Thermoset Basics and Characterization

Introduction to Thermosets - Jeff

Introduction to Thermoset Cure Chemistry - Jeff

Gelation, Vitrification, and Introduction to Cure Kinetics - Bruce

DSC of Thermosets – Bruce

DMTA of thermosets - Jeff

TMA and TGA of thermosets - Bruce

Case Studies in small group breakout sessions

Daily Wrap-up

Day Two: Advanced Topics and Introduction to Rheology

Advanced Kinetics – Bruce

Advanced UV curing chemistry – Jeff

Advanced thermal curing chemistry – Jeff

Advanced Thermal Analysis (TGA-MS, TGA-FTIR, MTDSC) - Bruce

Introduction to rheology – Jeff

Case Studies in small group breakout sessions

Daily Wrap-up

Day Three: Processing and Applications (Case Studies)

Rheology of thermosets – Jeff

Dielectric Analysis of thermosets – Jeff

Rheology of Adhesives and coatings – Jeff

Thermoset Coatings and Applications - Bruce

Processing of thermosets (SMC, BMC, Lamination, Autoclave, etc.) - Jeff

Case Studies in small group breakout sessions

Daily Wrap-up

Do you want to gain a competitive advantage by enhancing the skillset of your scientists, chemists, and engineers who work with thermosets?

Contact Thermoset University to see how we can help.

Dr. Jeffrey Gotro

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949-635-6916

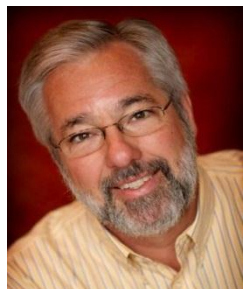
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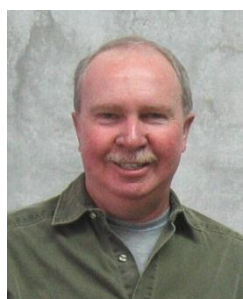
Faculty Biographies



Jeff Gotro, Ph.D. is the Founder and Chief Webinar Architect at PolymerWebinars.com. Jeff has over twenty-eight years' experience in thermosetting polymers used in electronics having held scientific and leadership positions at IBM, AlliedSignal, Honeywell International, and Ablestik Laboratories. During his corporate life, Jeff developed a deep understanding of polymer science and became a nationally recognized authority in thermosetting polymers. He has received invitations to speak at prestigious Gordon Research Conferences (Thermosetting Polymers and Composites) and has presented numerous invited lectures, along with technical presentations and short courses at national technical conferences. Jeff was an Adjunct Professor at Syracuse University in the Dept. of Chemical Engineering and Materials Science from 1986-1993. Jeff has published 60 [technical papers](#) (including 4 book chapters, one with Dr. Prime) in the field of polymeric materials for advanced electronic packaging applications and holds 13 [issued US patents](#), and have 8 patents pending. Jeff has a Ph.D. in Materials Science from Northwestern University with a specialty in polymer science.

View Dr. Gotro's LinkedIn Profile at www.linkedin.com/in/jeffgotro

Visit his blog to get tips and practical advice at www.polymerinnovationblog.com



R. Bruce Prime, Ph.D. is a co-founder of Thermoset University, a technical consultant and recognized authority on the cure and properties of crosslinked polymer systems. In his thirty-year IBM career he led teams responsible for developing and implementing polymer applications for printer and information storage technologies. He holds four patents and is the author of more than 50 technical papers and the chapter on Thermosets in *Thermal Characterization of Polymeric Materials* (E. A. Turi, editor, 1981, 1997). Bruce was a co-editor of *Thermal Analysis of Polymers: Fundamentals and Applications*, (J. D. Menczel and R. B. Prime, eds.), John Wiley & Sons, 2009. Bruce and Jeff also collaborated to publish *Thermosets* in *Encyclopedia of Polymer Science & Technology* (Third Edition, J. Kroschwitz, editor), John Wiley & Sons, 2004. Dr. Prime is a fellow of SPE and NATAS and was the 1989 recipient of the Mettler-Toledo Award in Thermal Analysis. In 1980 he co-founded what is now the Golden Gate Polymer Forum where he remains on the board of directors. Bruce obtained his Ph.D. in Chemistry from Rensselaer Polytechnic Institute with Dr. Bernard Wunderlich.

Visit his web site at www.primethermosets.com to get more information on thermosets, including thermal characterization.