

Tutorial – Basics of Thermosetting Resins
24 September 2018, Berlin, Germany

Basics of Thermosetting Resins – Tutorial

Date: September 24, 2018

Conditions: Minimum 8, maximum 20 attendees

Program

9.00 am – Welcome

Short Introduction to Thermosetting Resins

Instructor: Monika Bauer

1. Principles
2. Processing
3. Properties and characterization prior to, during and after curing
4. Repair and recycling aspects

11.30 am – Coffee Break

Chemistry, Processing, Properties, Characteristics, Applications

Instructor: Monika Bauer

1. Phenolics, including other formaldehyde resins (formaldehyde resins are the most used thermosets, phenolics were the first)
2. Epoxies (3rd in the market)
3. Cyanates
4. Short introduction to other thermosetting resins (e.g. benzoxazines, bisoxazolines, bismaleimides, polyimides, silicones, polyurethanes)

1 pm - 2 pm – Lunch

Chemistry, Processing, Properties, Characteristics, Applications

Instructor: Reinhard Lorenz

Unsaturated polyesters, including vinylesters (2nd in the market)

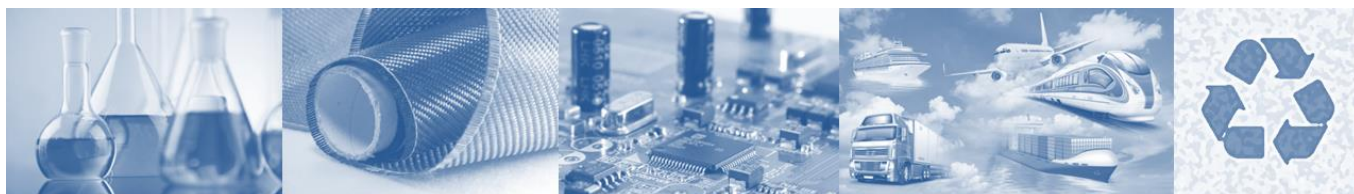
3 pm – Coffee Break

Fibre Reinforced Materials

Instructor: Terry McGrail

1. Introduction to composite materials and matrix selection criteria
2. Comparison of thermosets and thermoplastics as composite matrices
3. High temperature composite matrices
4. Strategies for toughening brittle thermosetting matrices including soluble fibre technology
5. Challenges for the composites industry

4.30 pm – End of Tutorial

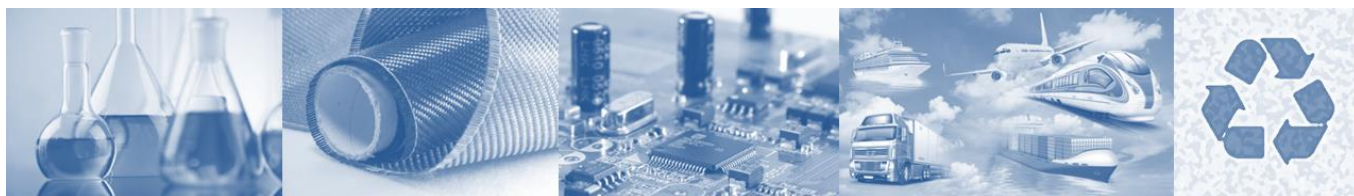


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Instructors

Curriculum Vitae – Monika Bauer

since 2016	Senior Scientist at <i>InnoMat GmbH</i>
1998 – 2016	Chair of <i>Polymeric Materials</i> at the <i>Brandenburg University of Technology Cottbus</i> , Germany
1992 – 2015	Director of the <i>Fraunhofer Research Institution for Polymeric Materials and Composites PYCO</i> in Teltow, Germany (1992-1997: Fraunhofer IFAM, Branch Lab Polymeric Materials, 1998-2007: Fraunhofer IZM, Branch Lab Polymeric Materials and Composites)
1990 – 1992	Build up of the Branch Lab for Polymeric Materials of the <i>Fraunhofer Institute for Applied Materials Research IFAM</i>
1988	Appointment as Professor at the <i>Academy of Sciences</i> , Teltow-Seehof, Germany
1987 – 1990	Head of the Polymer Synthesis Department at the <i>Institute for Polymer Chemistry (IPOC)</i> at the <i>Academy of Sciences</i>
1987	PhD B (Dr. sc. nat.) under the supervision of Prof. Dr. H. Frommelt at the <i>Central Institute for Organic Chemistry</i> (Title in German: <i>Netzwerkpolymere aus aromatischen Cyansäureestern (Network Polymers from Aromatic Cyanates)</i>)
1979	PhD A (Dr. rer. nat.) under the supervision of Prof. Dr. D. Martin at the <i>Central Institute for Organic Chemistry</i> (Title in German: <i>Cycloadditionen mit Cyansäureestern (Cycloadditions with Cyanates)</i>)
1973 – 1987	Scientific activities at the <i>Central Institute for Organic Chemistry</i> of the <i>Academy of Sciences (Akademie der Wissenschaften)</i> , Berlin, Germany
1969 – 1973	Chemistry studies at the <i>Dresden University of Technology</i> , Germany



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Curriculum Vitae – Reinhard Lorenz

since 1999	<p>Professor for <i>Polymer Technology and Polymer Chemistry</i> at the <i>University of Applied Science Münster</i>, Steinfurt, Germany.</p> <p>Areas of research:</p> <ul style="list-style-type: none"> - unsaturated polyester resins (UP-resins), SMC/BMC, relining, curing and VOC, - intrinsically antimicrobial polymers (thermoplastic and crosslinked materials), - tailor made compounds (flame retardancy, magnetic properties, ...).
1989 – 1999	<p>Research Chemist at <i>BASF</i>, Ludwigshafen, Germany.</p> <p>Areas of research:</p> <ul style="list-style-type: none"> - unsaturated polyester resins (UP-resins), GRP and shrink control, - polyurethanes, polyols, double metal cyanide catalysts and Poly(THF).
1985 – 1988	<p>Research Chemist at <i>Hoffmann-La Roche</i>, Bale, Switzerland.</p> <p>Research on synthesis and characterization of liquid crystal polymers.</p>
1985	<p>PhD (Dr. rer. nat.) under the supervision of Prof. Dr. R. Haase at <i>RWTH Aachen</i>, Institute of Physical Chemistry, Germany (Title in German: <i>Kalorimetrische Untersuchungen zum thermodynamischen Verhalten binärer flüssiger Systeme des Typs aliphatische Monocarbonsäure + Alkohole</i>).</p>
1977 – 1983	<p>Chemistry studies at <i>RWTH Aachen</i>, Germany.</p>

Curriculum Vitae – Terry McGrail

since 2010	Director <i>Irish Composites Centre (IComp)</i>
2008 – 2010	Consultant
2006 – 2008	Technical Director, AMRC with <i>Boeing</i> , <i>University of Sheffield</i>
2001 – 2006	Strategic R&T Director, <i>Cytec Engineered Materials</i> , Wilton Centre, UK
1996 – 2001	Manager, Polymers and Composites Group, <i>ICI Technology</i> , Wilton Centre, UK
1990 – 1996	<i>ICI Company</i> Research Associate, Composite Materials, ICI Wilton Centre, UK
1982 – 1986	Senior Research Scientist, <i>ICI New Science Group</i> , Wilton Centre, UK