

8th Austrian Polymer Meeting 2006 The Chain of Knowledge – From Catalyst to Application

LINZ, AUSTRIA
SEPTEMBER 20 - 22, 2006

Admittedly, the weather was very much on the organizers' side – autumn sun and nearly summery warmth made the Johannes Kepler University Linz a very pleasant place to be on September 20th to 22nd. But they had also done their best to attract more than 170 participants to this key event of polymer science in Austria. Each of the 6 symposia ranging from catalysts via characterization and processing to the final application properties featured an attractive keynote presentation, and two great evening events created opportunities for high-level scientific discussions in a relaxed atmosphere.

The Austrian Polymer meeting is traditionally organized by the working groups "Macromolecular Chemistry" and "Rheology and Colloid Science" of the GÖCH, the Austrian Chemists' Association. As the location this year was Linz, the organizers at the university, headed by Prof. Alois Schausberger of the Institute for Polymer Science, got support from Borealis Polyolefine GmbH through their Innovation Centre. All in all, 47 lectures and more than 70 posters were presented by authors from 11 countries. Only a few highlights with focus on rheology and polymer processing shall be presented here.

Already the opening keynote came from that field; Petra Pötschke from the Leibniz Institute of Polymer Research in Dresden, Germany, talked about "Melt Rheological Behavior of Polycarbonate/Multiwalled Carbon Nanotube Composites". By careful temperature scanning, she actually demonstrated the existence of three

superimposed networks in these systems contributing to the rheology: Nanotubes among themselves, nanotubes with polymer chains, and polymer chains alone. Differences in percolation concentration of MWCNT in rheological and electrical conductivity measurements can be explained that way. From the hosting department at JKU Linz came a presentation by Krisztina Vincze-Minya on "Influence of the Phase Morphology on the Viscoelastic Behavior of Polymer Melts (PP/PE Blends)", dealing with phase and blend rheology of ethylene/propylene impact copolymers. Combining the work on model compounds and reactor products with some calculations based on blend models it was possible to get an estimate of the interfacial tension in these systems. Two rheology instrument producers contributed presentations about new equipment: Torsten Remmler from Malvern showed results of piezo-actuators for the very high frequency range of dynamic measurements (realistic up to $2 \cdot 10^2$ Hz), and Jint Nijman from Thermo Electron presented a new thermostat chamber for the MARS rheometer. With this piece of equipment using combined convective and radiative heating a temperature range from -150 to +600°C is possible. Anton Paar KG was also present at the instrument exhibition with their latest developments in the MCR series of modular rheometers.

In the symposium on "Processing and Structure Formation" the keynote on "Polymer Crystallization during Processing – A Personal Jour-

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Figure 1 (left): New equipment was presented by a number of companies, of course also by the Austrian supplier Anton Paar KG.

Figure 2: The main organizers, Prof. Schausberger (right) and Dr. Gahleitner (center) handing over the best poster award to Rajendar Bandaria.



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ney” came from Prof. G.C. Alfonso from the University of Genova, Italy. He showed a large collection of results from the interaction between flow and crystallization for both polypropylene and poly-1-butene, pointing out the fact that molecular dimensions play a critical role in the crystallization of sheared systems. An important consequence of the complex relations of cooling rate and flow to the final crystallinity and morphology is the difficulty of simulation injection moulding processes in a realistic way. Reinhold Forstner from Eindhoven University of Technology, The Netherlands, talked about “PVT Behavior of Polymer Melts under High Cooling Rates and High Shear Rates”. He presented results from a rather new piece of equipment allowing to effectively simulating a wide range of cooling rates (up to 100°C/s) and the influence of pressure as well as shearing at various temperatures on the PVT diagram of semicrystalline polymers.

Processing simulation in a different context was presented by Petar Doshev of Borealis AS in Bamble, Norway. His talk on “Analytical Tech-

niques Characterizing the Behavior of Polypropylene during Rotational Molding” summarized research work done together with the SINTEF institute in Oslo. The melting and sintering behavior of PP powder was studied and related to the actual rotomolding performance. From the many poster contributions an expert jury selected three for an award, considering clarity and layout next to the content. The winner in this contest was Rajendar Bandaria from the IOM in Leipzig, Germany, with a poster on „Preparation, Characterization and Applications of Cyclooctene-Based Monoliths Prepared by Ring-Opening Metathesis Polymerization (ROMP)”.

Given the high activity level in polymer research evident at the present conference, also the next Austrian Polymer Meeting should become an interesting event.

Markus Gahleitner



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