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International Conference on Innovation by Materials (INNOMATA-93)

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International Conference on Innovation by Materials (INNOMATA-93)

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The International Conference on Innovation by Materials was held on November 22–25, 1993 in the frame of the Leipzig Fair, Germany. The slogan of Conference was “Intelligent Processing/Smart Materials.” The Exhibition of New Materials was also held within the same period. Many companies mostly from Germany together with applied institutes and publishers (a total of 53) contributed to this conference. The conference and exhibition were organized by the Research Institute of the German State Company for Chemical Apparatus, Chemical, Technical and Biotechnology (DECHEMA, Frankfurt upon Main)† and the Organizing Committee of the Leipzig Fair. Nearly 200 scientists from Germany, USA, United Kingdom, Belgium, Netherlands, Austria, Switzerland, The Czech Republic, Slovakia, France and Russia participated in the conference. Essentially it was a national German conference with participation of about 20 foreign experts. The majority of speakers presented their lectures in German with the remainder given in English. Three kinds of materials were considered: polymers and polymer composites, metals and ceramics. Nineteen plenary and 63 contributed lectures were given.

The opening remarks were made by Professor U. H. Felcht, the DECHEMA Director; Doctor G. Sievers, the Representative of the Ministry of Science and Technology of the Federal Government (Bonn); and one of the leading expert in the technology of materials Doctor H. Mecking (DGM, Hamburg). All of whom emphasized the importance of the current conference and the problems that should be considered. The plenary lectures followed their remarks.

Consistent with the specific interests of the readers of the International Polymeric Materials Journal and own interest of authors, we consider here only the parts of the conference that dealt with polymers and polymer composites. This part consisted of eight plenary and 29 contributed lectures, which could be collected in three groups: (i) development, production and treatment; (ii) structural aspects; and (iii) methods for testing materials.

Great interest was caused by the lecture of Doctor L. J. Sousa (Administration

†This Institute is one of the leading centers on research of new materials and traditionally participates in similar conferences in the frame of Frankfurt International Fair.

of the US Government, Washington, DC) who explained the details of reformation of the US materials economy. The main idea of such reformation concerns taking into account the environmental aspects of materials development. The lecture of Doctor H. Chedron (Hoechst Co., Frankfurt upon Main) focused upon the general directions of the industrial development of polymeric materials, whereas materials for the electronic/electrical industry were considered in greater detail by Doctor C. Weyrich (Siemens Co., Munich, Germany). Following an idea of the importance of environmental friendly processes, Doctors H.-J. Middeke, S. Hempelmann (Schering AG, Berlin, Germany) described a new approach to coat polymers with metal and applications of such materials in EMI shielding.

Several communications dealt with the surface treatments and coatings of/on materials for wear resistance. This topic was presented by Professor G. Leonhardt (Vakuumtechnik GmbH, Dresden), Doctor K.-H. Bather (MAT GmbH, Dresden), and J. Roethig (Otto von Guericke University, Magdeburg, Germany). In this session, the lecture of Doctor V. F. Salvia (Sage Corporation, Taylor, Michigan, USA) on effective utilization of permanent bonded thin film lubricants deserves special mention.

Professor G. E. Zaikov (Institute of Chemical Physics, Russian Academy of Sciences, Moscow) reviewed the current state and frontiers for development of polymer aging and stabilization in former USSR. The speaker presented convincing evidence that in spite of many financial and social problems the scientists of Russia and other new Independent States still succeeded in many fields of fundamental and applied research. The current status of technologies of applying fluoropolymers for barrier (lining) applications was overviewed by P. R. Khaladkar (Du Pont, Newark, Delaware, USA).

Professor K. Sculte (TU Hamburg-Harburg) had considered several applications of loaded carbon fibers as sensors in composite materials, while the development of micromaterials was discussed in the lecture of Professor E. Artz (Max Plank Institute, Stuttgart, Germany) with reference to mechanical properties in small dimensions. Doctor M. Nebelung contributed to the conference with consideration of fluid bed granulation as an effective process to make homogeneous, well-flowing granulates of various size distributions and hardness. Doctor Kaske (KMS Formbau GmbH, Bad Muskau, Germany) described the method to making composite molded parts through the simultaneous processing of polymers and rubber.

Two communications were presented by staffs of HALS AG, Marl, Germany. Doctor Ch. Baron spoke about new polymer/rubber composites without adhesive additives, and Doctor H. Ries discussed multilayer plastic pipes for fuel lines with improved barrier properties. The achievements of HALS branch in Troisdorf (Germany) was demonstrated in the lecture of R. Schommer on thermoplastic materials for engineering application. This speaker especially focused upon the variety of demands to provide increased safety of materials. Thermoplastic fiber/polymer composites and their technical characterization were discussed by Doctor E. Born and K. Pankoke (IFAM Bremen, Germany). Duplex materials and their appli-

cations under corrosive and abrasive conditions were described in the lecture of W. Precht (KSB GE, Pegnitz, Germany).

An interesting and lively discussion took place within the frame of the two-day session on structure of polymers, polymer blends and polymer composites, which considered fundamental and applied problems of this area of polymer chemistry.

Professor H.-J. Radusch (High School of Science and Technology) generalized the results of theoretical and experimental study of polymer blends of technical and high-temperature resistant plastics. The effect of structure on behavior of glass matrix composites was considered in the lecture of Doctor W. Pannhorst (The Centre of Research and Development, Mainz, Germany). Doctor G. Pitzler (Research and Technological Centre, Freiberg, Germany) proposed and justified an approach to the development of plastic films (sheeting) without PVC. Several applications of polymer blends and composites were discussed. These included the communications of R. Schramme (Klochner Pentatec GmbH, Nischwitz, Germany) entitled, "High Performance Polymers and Their Applications;" K. Gruber (Gruber Wachtelweg, Halle, Germany) entitled, "Polymer Blends for Innovative Applications in Automotive and Engineering Constructions;" R. Hagen (Wartweg, Gross-Umstadt, Germany) entitled, "Modified Polyamide Materials, Special Types for Molding;" and in greater detail the lecture of Doctor W. von Bonin (Bayer AG, Leverkusen, Germany) who presented the composite with a novel combination of properties that provide higher resistance to heat and light.

The fiber composites were discussed mainly from the applied point of view in communications "Innovative Development Project of the Demo-centre for Fibre Reinforced Composites in Braunschweig," Doctor A.-S. Hermann (Institute of Structural Mechanics, Braunschweig, Germany); "Attenuation as a Criterion for the Design of Dynamically Stressed Fibre Composites," Doctor W. Hufenbach (TU, Dresden); and "Phenolic Resin Materials with Long and Short Reinforcing Fibres for Engineering Constructions," Doctor B. Gibbesch (Keramchemie GmbH, Siershahn, Germany).

New testing techniques were considered by Doctor U. Netzelmann (Saarbruken University, Germany) in his lecture entitled, "High Resolution Non-destructive Testing Methods" and by two representatives of IABG Ottoburn, Germany, who described a measurement of thermal expansion of polymers up to 1700°C (R. Gaus) and functional tests under combined thermomechanical and gas atmosphere stress (K.K.O. Bar).

The use of recycled polymers was discussed by the German speakers Doctor A. Boccaccini (RWTH, Aachen) "Development of Composites Using Recycled Materials from Waste;" Dr. Brunner (CKT Chemnitz) "Process and Performance Aspects in the Use of Recycled Polymers;" and J. Wartusch (Daimler Benz AG) "Polymer Recycling of Electrical Applications and Re-use for High Performance Applications." Dr. Wartusch especially focused on the use of polypropylene in washing machines.

The last session of the conference was of less interest for participants although some lectures should be mentioned. They included "Polyurethane Hydrogels Made

from New Polycarbamoyl Sulfonate Pre-polymers," A. Muscat (Institute of Technology, Braunschweig); "In-vitro Bio-compatibility of Implant and Dental Alloys," G. Hildebrandt (Institute of Bioprocesses and Analytical Methods, Heiligenstadt, Germany); and "Highly Porous Materials," H. Kubsch (Institute of Applied Materials Research, Dresden).

The next conference will be held June 5–11, 1994 in Frankfurt upon Main, whereas the Conference of 1995 is proposed to be in Beijing, China.