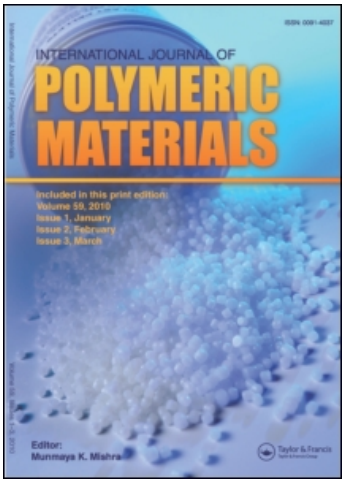

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Fire Retardant Polymers (Fifth European Conference)

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Fire Retardant Polymers (Fifth European Conference)

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The Fifth European conference on Fire Retardant Polymers was held at the University of Salford (UK), September 4–7, 1995. This meeting was organized by the Society of Chemical Industry's Fire Chemistry Discussion Group, the University of Salford, FMC corporation (Manchester), the Fire Research Station (Borehamwood) and the Bolton Institute and University of Greenwich.

About 150 scientists from 76 research centers in the following countries attended: UK, USA, Italy, Israel, Russia, Belorussia, Switzerland, Holland, France, Sweden, Slovakia, Norway, Taiwan, China and Finland.

There were 6 plenary, 26 plenary-sessions lectures and a poster session with 20 posters. There was also a report about the development of new materials with improved fire resistance "BRITE-EURAM PROJECT 4412-CT 031-466."

The plenary lecture by Prof. Charles A. Wilkie of Marquet University, Milwaukee, Wisconsin, USA concerned grafting to achieve flame retardancy. Prof. Edward D. Weil of the Polymer Research Institute, Brooklyn Polytechnic University, New York, USA discussed a systems approach to flame retardancy and commented on modes of action. The physical aspects of polymer combustion and the mechanism of fire retardant action were discussed by Prof. N. A. Khalturinskii of the Institute of Synthetic Polymeric Materials of Russian Academy of Sciences, Moscow, Russia. The problems of thermal recycling of polymers were reviewed by D. F. Mader from the European Centre for Plastics in the Environment (Brussels, Belgium). Prof. A. R. Horrocks from the Bolton Institute (UK) discussed the problems of developments of flame retardants for heat and flame resistant textiles. Dr. S. A. Ames from the Fire Research Station, Borehamwood (UK) talked about fire tests and fire measurements.

The lectures were divided into six sessions. The first session included six presentations. Prof. Guennadii E. Zaikov from the Institute of Chemical Physics, Moscow, spoke about new aspects of ecologically-safe polymer flame retardant compositions. The talk of Drs. A. A. Kettrup, W. Thumm and K. Kampke-Thiel (GSF GbmH, Oberschleissheim, Germany) was dedicated to problems of ecotoxicological property evaluation of new duroplastic materials containing no halogen as flame retardant. The development of environmentally friendly multifunctional flame retar-

dants for plastics were discussed by R. Smith, P. Georlette, I. Finberg and Y. Scheinert (Dead Sea Bromine Group, Beer Sheva, Israel). Dr. C. J. Abraham of Inter-City Testing & Consulting Corporation, New York, discussed solutions to spontaneous combustion in linseed oil formulations. The paper by S. Ogoe, P. F. Grelle, J. T. Watkins and P. J. Masloski of Dow Chemical Comp., Freeport, USA discussed the advantages of high melt flow rate ignition resistant polycarbonate versus IR PC/ABS blends. The last report of the first session was dedicated to free radical initiators in fire retardant systems for polypropylene (G. Bertelli, R. Marchini, Himont Italia Ferrara, L. Costa and G. Camino, University of Turin, Turin, Italy).

The chairman of first session was Prof. W. D. Woolley (UK).

The second session included five reports. Dr. J. Green (FMC Corp., Princeton, New Jersey, USA) discussed the phosphorus-bromine flame retardant synergy. Prof. J. Wang from Beijing Institute of Technology, Beijing, China described the applications of XPS and TGA/FTIR to studies of thermal degradation and charing of PVC and PVC/Cu_2O systems. The advantages of flame retardance based on nitrogen compounds were reviewed by H. Horachek and R. Grabner (Chemie Linz AG, Linz, Austria). S. V. Levchik, G. F. Levchik, A. L. Balabanovich (Byelorussian University, Minsk, Belarus) and Profs. G. Camino and L. Costa (University of Turin) reported a mechanistic study of the combustion performance and thermal decomposition behavior of nylon 6 in presence of halogen-free fire retardants. The third session included a report about the theory of ignition and extinction of polymeric materials (I. G. Assovskii Institute of Chemical Physics, Moscow), C. Di Blasi discussed modeling solid and gas phase processes during thermal degradation of composite materials. The use of laser pyrolysis as a model for fire behavior behind the flame front was reviewed in a report by F. Gao, G. V. Coleman, D. Price and G. J. Milnes, University of Salford. The modeling of heat release rate curves from a cone calorimeter was reviewed by J. Rychly and L. Rychla (Slovak Academy of Sciences, Bratislava, Slovak Republic). Silicate intumescence was the topic of the paper by E. Metcalfe, Z. Feng, D. Kendrick and S. Sejourner (The University of Greenwich, London). The last talk of this session was about a cone calorimetric study of some flame retardant polyolefins (K. Shen, Beijing Institute of Technology).

The fourth session was opened by P. J. Faedell (Fire Research Station, BRE Garston, Watford, UK) who discussed PVC performance in the cone calorimeter. The topic of the second report was thermal degradation of high performance polymers (R. Torrecillas and B. Mortaigne, DGA/Centre de Recherches et d'Etudes d'Arcueil, Arcueil, France). The mechanisms of intumescence was reviewed in a report by G. Camino, M. P. Luda and L. Costa (University of Turin). The last report on this session about new FR formulations for polytechnic polymers was prepared by S. Bourbigot *et al.*

There were three reports in the fifth session. The report about fire retardant mechanistic aspects of melanine cyanurate in polyamide copolymer was prepared by A. Casu *et al.* The char formation mechanisms in flame retardant fiber-intumescent combinations was discussed in report of B. K. Kandola and A. R. Horrocks (Bolton Institute). The problems of using of fire-resistant triazine resins were discussed by R. E. Lyon, A. M. Granville, F. E. Arnold Jr., and S. Das (Federal Aviation Administration, Atlantic City, USA). There were three talks in the last session: the ignition

properties of thin thermoplastics were discussed in the report of M. Nelson, J. Brindley and M. McIntosh (The University of Leeds). M. M. Hirschler from GBH International, Rocky River, USA talked about the survey of American test methods associated with fire performance of materials or products. The incorporation of natural flame retardant fillers in an ethylene-propylene copolymer in combination with halogen-antimony systems was discussed by J. M. Lopez Cuesta, B. Toure and A. Crespy (Ecole des Mines d'Ales, Ales, France).

Information about Brite-EURAM Project 4412-CT031-466 was given by B. Costes (Aerospatiale, France), M. R. Buckingham (3M Research Ltd., Harlow, UK), S. V. Levchick (University of Turin) and P. L. Chambers (University of Dublin, Ireland).

The Fifth European Conference showed that the problem of fire retardant polymers remains an important issue of pure and applied chemistry.

The 7th conference will be held in Lille University (Lille, France) in 1997.