



UNDER AUSPICES OF EUROPEAN POLYMER FEDERATION

## FRMP'09 PROGRAMME

SUNDAY, 30.08.2009

17:00-19:00	REGISTRATION AND WELCOME DRINK RECEPTION VENUE INF
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MONDAY, 31.08.2009

8:00-9:00	REGISTRATION AND COFFEE
9:00-9:30	<b>Official Opening</b> - Prof dr hab. Grzegorz Szychalski General Director Institute of Natural Fibres & Medicinal Plants, Poland
9:30 - 10:45	<b>Scientific Session 1: NANOCOMPOSITES IN FLAME RETARDANCY</b> Chair: Ryszard Kozłowski, Institute of Natural Fibres & Medicinal Plants, Poland Giovanni Camino, Politecnico di Torino, Alessandria, Italy
9:30-10:15	<b>Plenary:</b> Flame Retarding Polymer Nanocomposites: Synergism, Antagonism and Cooperation <u>Menachem Lewin</u> , Polymer Research Institute and Department of Chemical and Biological Sciences, Polytechnic Institute of NYU
10:15-10:45	<b>Plenary:</b> Nanocomposites the Promising Perspective for Fire Retardancy <u>Giovanni Camino</u> , The Politechnic of Torino – Alessandria Site, Italy
10:45-11:15	COFFEE BREAK

11:15-11:25	Prof. Menachem Lewin - Session dedicated to Prof. Ryszard Kozlowski
11:25-12:45	<b>Scientific Session 1 cont.: NANOCOMPOSITES IN FLAME RETARDANCY</b> Chair: Giovanni Camino The Politechnico of Torino , Italy Ryszard Kozlowski, Institute of Natural Fibres & Medicinal Plants, Poland
11:25-11:45	Phosphorus-containing Polyesters and Their Nanocomposites with Layered Silicates: Synthesis and Flame Retardancy <u>D. Pospiech</u> <sup>1)</sup> , A. Korwitz <sup>1)</sup> , T. Hoffmann <sup>1)</sup> , L. Häußler <sup>1)</sup> , M. Döring <sup>2)</sup> , M. Ciesielski <sup>2)</sup> , B. Schartel <sup>3)</sup> , A. Balabanovich <sup>4)</sup> <sup>1)</sup> Leibniz Institute of Polymer Research Dresden, Germany <sup>2)</sup> FZ Karlsruhe, Institute of Technical Chemistry, Germany <sup>3)</sup> BAM Federal Institute for Materials Research and Testing, Berlin, Germany <sup>4)</sup> Samsung SDI, Korea
11:45-12:05	New PVC Nanocomposites Based on LDH's and Novel Hybrid tin-LDH Nanoparticles <u>A. Minigher</u> , <sup>1</sup> P. Campaner <sup>1</sup> , P. Cusack, <sup>2</sup> E. Benedetti <sup>1</sup> , A. Valerio <sup>1</sup> <sup>1</sup> Cimteclab Srl, Area Science Park, Trieste, Italy <sup>2</sup> ITRI Ltd, St Albans, United Kingdom
12:05-12:25	Flame Retardancy of Layered Silicate Epoxy Nanocomposites Combined with Low Melting Inorganic Glasses <u>G. Wu</u> <sup>1</sup> , B. Schartel <sup>1</sup> , M. Kleemeier <sup>2</sup> , A. Hartwig <sup>2</sup> <sup>1</sup> BAM Federal Institute for Materials Research and Testing, Germany; <sup>2</sup> Fraunhofer-Institut für Fertigungstechnik und Angewandte Materialforschung, Germany
12:25 - 12:45	Do Fire Retardant and Nanoclay Additives Affect Pa66 Toxicity in a Fire? <u>Jennifer Rhodes</u> , Anna Stec, T Richard Hull Centre for Fire and Hazards Science, University of Central Lancashire, Preston, UK
12:45-13:00	<b>POSTER SESSION-ONE MINUTE OVERVIEWS (15)</b>
13:00-14:00	<b>LUNCH BREAK AND POSTER SESSION</b>
14:00-15:30	<b>Scientific Session 2: NANOSCIENCE AND SYNERGY</b> Chair: Stanisław Penczek, The Centre of Molecular and Macromolecular. Polish Academy of Sciences, Poland Charles A. Wilkie, Marquette University, Milwaukee, USA
14:00-14:30	<b>Plenary:</b> Nanoparticles as Synergists For Flame Retarded Polymeric Materials <u>Serge Bourbigot</u> , S. Duquesne, G. Fontaine Procédés d'Elaboration des Revêtements Fonctionnels (PERF), Ecole Nationale Supérieure de Chimie de Lille (ENSCL), Cedex, France
14:30-14:50	Synergistic Effect of Nano-Particles with Flame Retardants on the Flammability of Nanocomposites Feng Yang, <u>Gordon L. Nelson</u>

	College of Science, Florida Institute of Technology, Melbourne, USA
14:50-15:10	<p>Relations Between Some Physical Properties and Fire Behaviour in PMMA/ Oxide Nanocomposites</p> <p>B. Friederich<sup>1,2</sup>, A. Laachachi<sup>1</sup>, M. Cochez<sup>2</sup>, D. Ruch<sup>1</sup>, <u>M. Ferriol</u><sup>2</sup></p> <p><sup>1</sup> Laboratoire de Technologies Industrielles, Centre de Recherche Public Henri Tudor Esch sur Alzette, Luxembourg</p> <p><sup>2</sup> Laboratoire M.O.P.S., U.M.R. C.N.R.S., Département Chimie I.U.T.de Moselle Est, Université Paul Verlaine-Metz, France</p>
15:10-15:30	<p>Latest developments in co-rotating twin screws for the compounding of nano-composites</p> <p><u>A. Koschmieder</u>, Leistriz, Germany</p>
15:30-16:00	COFFEE BREAK
16:00-17:05	<p>Scientific Session 2 cont.: NANOSCIENCE AND SYNERGY</p> <p>Chair:</p> <p>Gordon L. Nelson, College of Science, Florida Institute of Technology Melbourne, USA</p> <p>Baljinder Kandola, Centre for Materials Research and Innovation University of Bolton, Bolton, UK</p>
16:00-16:20	<p>Synergy Between Surface-Treated Nano-Oxides and APP IN Flame Retarded Thermoplastics,</p> <p>J.-M. Lopez-Cuesta<sup>1*</sup>, N. Cinausero<sup>1</sup>, N. Azéma<sup>1</sup>, M. Cochez<sup>2</sup>, M. Ferriol<sup>2</sup>, <u>C. Chivas</u><sup>3</sup></p> <p><sup>1</sup> Centre des Matériaux de Grande Diffusion, Ecole des Mines d'Alès, Cedex, France</p> <p><sup>2</sup> Laboratoire MOPS, UMR CNRS 7132, Université Paul Verlaine-Metz, Département Chimie de l'IUT de Moselle-Est, France</p> <p><sup>3</sup> LNE-Trappes, ZA de Trappes-Élancourt, Cedex, France</p>
16:20-16:40	<p>Thermal Degradation and Combustion Behavior of Propylene/ Multi-Walled Carbon Nanotube Composites <u>Zaikov G.E.</u><sup>1</sup>, Rakhimkulov A.D.<sup>1</sup>, Lomakin S.M.<sup>1</sup>, I. L. Dubnikova<sup>2</sup>, Shchegolikhin A.N.<sup>1</sup>, Davidov E.Ya.<sup>1</sup> and, R. Kozlowski<sup>3</sup></p> <p><sup>1</sup>NM Emanuel Institute of Biochemical Physics of Russian Academy of Science, Russia</p> <p><sup>2</sup>NN Semenov Institute of Chemical Physics of Russian Academy of Sciences, Russia</p> <p><sup>3</sup>Institute of Natural Fibres &amp; Medicinal Plant, Poland</p>
16:40-17:30	PANEL PRESENTATION – NANOSCIENCE AND SYNERGY
16:40-16:45	<p>Flammability, Structure and Mechanical Properties of Polypropylene/ Organobentonite Nanocomposites</p> <p><u>K.Szustakiewicz</u>, A.Kiersnowski, M.Serwaczak, K.Bujnowicz, J.Pigłowski,</p> <p><sup>1</sup>Polymer Engineering and Technology, Wroclaw University of Technology, Wroclaw, Poland,</p> <p><sup>2</sup> Institute of Natural Fibres, Poznan, Poland</p>
16:45-16:50	<p>Fire Behaviour of Polyurethane Nanocomposite Foams Filled with Phosphorus-Based Flame Retardant and Nanoclays</p> <p><u>A. Lorenzetti</u>, M. Modesti, S. Besco, D. Hrelja, F. Zapperi</p> <p>University of Padova, Dept. of Chemical Process Engineering, Padova, Italy.</p>
16:50-16:55	Nanocomposites Based on Crystallizing Polymers and Montmorillonite.

	Ashirbekova S.U., Sadikov Sh.G., Ashurov N.R. Institute of Polymer Chemistry and Physics, Uzbekistan Academy of Sciences, Uzbekistan.
16:55-17:00	Thermal Degradation and Combustion of Propylene/ MWCNT Nanocomposite Prepared by Melt Intercalation M. Lomakin <sup>1</sup> , L.A. Dubnikova <sup>2</sup> , Rakhimkulov A.D. <sup>1</sup> , A.N. Shchegolikhin <sup>1</sup> and <u>Zaikov G.E.</u> <sup>1</sup> <sup>1</sup> N.M. Emanuel Institute of Biochemical Physics of Russian Academy of Sciences, Moscow, Russia, <sup>2</sup> N.N. Semenov Institute of Chemical Physics of Russian Academy of Sciences, Moscow, Russia
17:00-17:05	Comparative Analysis of Combustibility of Chosen Epoxy Nanocomposite <u>M. Polka</u> , The Main School of Fire Service, The Combustion and Fire Theory Division, Warsaw, Poland
17:05-17:20	DISCUSSION
17:20	TRANSPORT TO THE HOTELS
17:30-19:00	FREE TIME
19:30-23:00	CONFERENCE DINNER

## TUESDAY, 1.09.2009

8:00 – 8:30	COFFEE ON ARRIVAL
8:30-10-30	<b>Scientific Session 3: FIRE RETARDANT MECHANISM</b> Chair: Serge Bourbigot, Ecole Nationale Supérieure de Chimie de Lille (ENSCL), Cedex, France Dennis Price, CMRI University of Bolton, UK
8:30-9:00	<b>Plenary:</b> Understanding Flame Retardancy Mechanisms in Composites: A Key For Tailored Development <u>B. Schartel</u> , U. Braun BAM Federal Institute for Materials Research and Testing, Berlin, Germany,
9:00 – 9:30	<b>Plenary:</b> Microscale Investigation of Fire Retardant Mechanisms <u>T Richard Hull</u> <sup>1</sup> , Anna A Stec <sup>1</sup> , Parina Patel <sup>1</sup> and Shonali Nazare <sup>2</sup> <sup>1</sup> Centre for Fire and Hazards Science, University of Central Lancashire, Preston, UK <sup>2</sup> Fire Materials Laboratory, CMRI, University of Bolton, Bolton, UK
9:30-9:50	Flame Retardancy of Polymers Using Surface Modification <u>S. Duquesne</u> ,

	Laboratoire des Procédés d'Elaboration de Revêtements Fonctionnels (PERF), Ecole Nationale Supérieure de Chimie de Lille (ENSCL), Cedex, France
9:50-10:10	Quantifying the Synergistic Effectiveness of Zinc Stannates in Selected Polymers <u>A.R. Horrocks</u> , G.Smart, S.Nazaré, D.Price, B.Kandola, Centre for Materials Research and Innovation University of Bolton, Bolton, UK
10:10-10:30	Novel Chemical Approaches for Making Flame Retarded Polymers <u>G. Fontaine</u> , S.Bourbigot, Procédés d'Elaboration des Revêtements Fonctionnels (PERF), Ecole Nationale Supérieure de Chimie de Lille (ENSCL), Cedex, France
10:30-11:00	COFFEE BREAK
11:00-13:00	<b>Scientific Session 4: FIRE RETARDANTS OF POLYMERS</b> Chair: Gyorgy Marosi Budapest University of Technology and Economics, Department of Organic Chemistry and Technology, Budapest, Hungary Manfred Döring, Karlsruhe Research Centre, Germany
11:00-11:20	Recent Advances in the Use of Layered Double Hydroxides in Fire Retardancy <u>C.A.Wilkie</u> , Marquette University, Milwaukee, USA
11:20-11:40	Effect of Newly Developed Glass Additive Samples on Flammability of Polymers <u>B.K. Kandola</u> , W Pornwannachai, Centre for Materials Research and Innovation University of Bolton, Bolton, UK
11:40-12:00	Halogen-Free Flame Retarded Poly(Butylene Terephthalate) (PBT) by Using Nanometric Metal Oxides in Combination With Aluminium Phosphinate <u>E. Gallo</u> <sup>1</sup> , U. Braun <sup>2</sup> , B. Scharfel <sup>2</sup> , P. Russo <sup>1</sup> , D. Acierno <sup>1</sup> <sup>1</sup> Department of Materials and Production Engineering, University of Naples "Federico II", Naples, Italy <sup>2</sup> BAM Federal Institute for Materials Research and Testing, Berlin, Germany
12:00-12:20	Influence of Morphology on Fire Behaviour of Flame-Retardant PC/PBT Blends <u>R.Sonnier</u> , <u>J-M.Lopez-Cuesta</u> Centre des Matériaux de Grande Diffusion, Ecole des Mines d'Alès, Alès, France
12:20-12:40	POSTER SESSION – ONE MINUTE OVERVIEWS (15)
13:00-14:00	LUNCH BREAK AND POSTER SESSION
14:00-15:40	<b>Scientific Session 5: NEW MATERIALS</b> Chair: Gennady Zaikov .M. Emanuel Institute of Biochemical Physics of Russian Academy of Sciences, Moscow, Russia Maria Wladyka-Przybylak, Institute of Natural Fibres and Medicinal Plants, Poznan, Poland

14:00-14:30	<p><b>Plenary:</b> Flammability and fire resistance of composites reinforced by natural fibers  <u>R. Kozłowski</u>, M.Wladyka-Przybylak, M. Muzyczek, Institute of Natural Fibres &amp; Medicinal Plants, Poznan, Poland</p>
14:30-15:00	<p><b>Plenary:</b> The Body and the Skin: Model for FRPM  <u>Gy. Marosi</u>, B. Marosfoi, B. Bodzay, A. Toldy, T. Igricz, P. Anna  Budapest University of Technology and Economics, Organic Chemistry and Technology Department</p>
15:00-15:20	<p>Highly Flame Retardant Polypropylene Compositions with Good Impact Performance and UV Resistance  P.Georlette<sup>1</sup>, Y. Bar Yaakov<sup>1</sup>, S.Hini<sup>1</sup>, Dr. Sieghard Goebelbecker<sup>2</sup>, <u>Rudi Borms</u><sup>2</sup>  <sup>1</sup>ICL-IP, Beer Sheva; Israel,  <sup>2</sup>ICL-IP Europe B.V. Amsterdam; The Netherlands</p>
15:20-15:40	<p>Use of Coir Fiber For Heat Insulation  Dr. Samrat Mukhopadhyay<sup>1</sup>, D. Annamalai<sup>2</sup>, <u>R. Srikanta</u><sup>3</sup>  <sup>1</sup> Department of Textile Technology, Indian Institute of Technology, Delhi, India  <sup>2</sup>Gokak Textiles Ltd., Bangalore, India  <sup>3</sup>Engineer Marketing Services, SSM Schärer Schweiter Mettler AG Liaison Office India, Coimbatore, India</p>
15:40-16:00	COFFEE BREAK
16:00-17:10	<p style="text-align: center;"><b>Scientific Session 5 cont.: NEW MATERIALS</b></p> <p>Chair:  T Richard Hull, Centre for Fire and Hazards Science, University of Central Lancashire, Preston, UK  Bernard Schärtel, BAM Federal Institute for Materials Research and Testing, Berlin, Germany</p>
16:00-16:20	<p>4,4,5,5- Tetra(3,5-Dibromophenyl)-2,2-Diphenyl-1,3-Dioxa-2-Silole and Related Compounds as Precursors to Flame Retardant Oligomers  <u>Bob A. Howell</u>, Young-Jun Cho  Center for Applications in Polymer Science, Central Michigan University, USA</p>
16:20-16:40	<p>Synthesis and Investigation of a New Heterocyclic Phosphorus Compound as Flame Retardant in Epoxy Resins <u>M.Rakotomalala</u>, M.Döring  Karlsruhe Research Institute for Technical Chemistry, Karlsruhe, Germany</p>
16:40-17:30	PANEL PRESENTATION
16:40-16:45	<p>Halogen-Free Fire-Retardant Epoxy Resins  <u>M.Döring</u>, M.Ciesielski, J.Diederichs,  Institute for Technical Chemistry, Karlsruhe Research Centre, Karlsruhe, Germany,</p>

16:45-16:50	Flame Retarding Vinyl Polymers Using Phosphorus-Functionalized Styrene Monomers <u>A.Dumitrascu</u> , B.A.Howell Center for Applications in Polymer Science, Central Michigan University, Mt. Pleasant, USA
16:55-17:00	Synthesis of the Novel Flame Retardant Acrylate Monomer Containing Phosphorus and the Combustion and Thermal Behavior of The UV-Cured Coating. <u>Yuan Hu</u> , Weiyi Xing, Lei Song, Xilei Chen State Key Laboratory of Fire Science, University of Science and Technology of China, Hefei, P.R.China
17:00-17:05	Multifunctional Flame Retardants Based on Azoalkanes M. Aubert <sup>1</sup> W. Pawelec <sup>1</sup> , <u>C.E. Wilén</u> <sup>1</sup> , R. Pfaendner <sup>2</sup> , H. Hoppe <sup>3</sup> <sup>1</sup> Laboratory of Polymer Technology, Åbo Akademi University, Åbo, Finland, <sup>2</sup> Ciba Lampertheim GmbH, Lampertheim, Germany, <sup>3</sup> Ciba Inc. Basel, Switzerland
17:05-17:10	Improving The Modeling of Thermal Decomposition of Polyurethane Foam <u>L. Bustamante</u> <sup>1,2</sup> , Thomas Rogaume <sup>1</sup> , Eric Guillaume <sup>2</sup> <sup>1</sup> Laboratoire de Combustion et de Détonique (LCD), Futuroscope, France <sup>2</sup> Laboratoire National de Métrologie et d'Essais (LNE), Trappes, France
17:30-21:00	PICNIC IN SZRENIAWA

## WEDNESDAY, 2.09.2009

8:00-8:30	COFFEE ON ARRIVAL
8:30-10:30	<p><b>Scientific Session 6: FIRE RETARDANT TEXTILES</b></p> <p>Chair: Jose Marie Lopez-Cuesta Centre des Matériaux de Grande Diffusion, Ecole des Mines d'Alès 6, ALES, Cedex, France Malgorzata Muzyczek, Institute of Natural Fibres and Medicinal Plants, Poznan, Poland</p>
8:30-9:00	<p><b>Plenary:</b> Flame Retardant Challenges for Textiles and Fibres: New Chemistry Versus Innovatory Solutions <u>A.Richard Horrocks</u>, University of Bolton, Bolton, UK</p>
9:00-9:30	<p><b>Plenary:</b> Materials and Fire Performance Testing of Barrier Fabrics in Mattress and Upholstery Furniture <u>Rick Davis</u>, J.Gilman Materials Flammability Group Building and Fire Research Laboratory National Institute and Technology, Gaithersburg, USA</p>

9:30-9:50	<p>The Use of Renewable Resources as Binder Resin For Functionalized Fibres: a New Challenge for Technical Textile Application Ch.Reti(ENSCL), M.Casetta(ENSCL), S.Duquesne(ENSCL), P.Mesnage IFTH,<u>C.Magniez</u> IFTH,S.Solarski ENSAIT,P.Vroman ENSAIT,E.Devaux ENSAIT, France</p>
9:50-10:10	<p>Fire Reaction of Polyester-Cotton Knitted Fabrics Treated by Padding or Back Coating with Boron Products <u>S. Giraud</u><sup>1</sup>, I. Vroman<sup>2</sup>, S. Duquesne<sup>3</sup>, S. Bourbigot<sup>3</sup> <sup>1</sup> Laboratoire de Génie et Matériaux Textiles (GEMTEX), École Nationale Supérieure des Arts et Industries Textiles (ENSAIT), France, <sup>2</sup>Centre d'Etudes et de Recherche en Matériaux et Emballage (CERME), École Supérieure d'Ingénieurs en Emballage et Conditionnement (ESIEC), <sup>3</sup>Procédés d'Elaboration des Revêtements Fonctionnels (PERF), École Nationale Supérieure de Chimie de Lille (ENSCL), France</p>
10:10-10:30	<p>Poly-Maleate Phosphate as New Flame Retardant Additives for Textile Back Coating. <u>M. A. Hassan</u><sup>2</sup>, Bartosz Obidzinski<sup>1</sup>, Ryszard Kozlowski<sup>1</sup> <sup>1</sup>Institute of Natural Fibres, Poland, <sup>2</sup>National Institute of Standards, Egypt</p>
10:30-11:00	COFFEE BREAK
	<p><b>Scientific Session 6 cont.: Fire retardant textiles</b> Chair: Jürgen H. Troitzsch, Fire Protection Service, Germany Yuan Hu, University of Science and Technology of China, Hefei, Anhui, China</p>
11:00-11:20	<p>Studies on The Influence of Functional Groups in Phosphoramidate Compounds on Thermal Decomposition and Flame Retardant Properties of Cellulose <u>V. Salimova</u><sup>1</sup>, S. Gaan<sup>1</sup>, J. Levalois-Grützmacher<sup>2</sup> <sup>1</sup> Empa, Materials Science and Technology, Sankt Gallen, <sup>2</sup> Department of Material Sciences, Zürich, Switzerland</p>
11:20-11:40	<p>New Ecological Preparation Method for Fireproof Cellulose/ Silicate Fibres W. Stęplewski,<u>D.Wawro</u>, J.Kazimierczak, Institute of Biopolymers and Chemical Fibres, Łódź, Poland</p>
11:40-12:00	<p>Flame Retardancy of Thermoplastic Polyurethane for Textile Coatings: Synergistic Aspects <u>M. Rochery</u><sup>1</sup>, S. Giraud<sup>1</sup>, E. Withers<sup>2</sup>, S. Bourbigot<sup>3</sup> <sup>1</sup> Laboratoire de Génie et Matériaux Textiles (GEMTEX), France, <sup>2</sup> Textiles and Paper School of Materials, The University of Manchester, United Kingdom, <sup>3</sup> Procédés d'Elaboration des Revêtements Fonctionnels (PERF), École Nationale Supérieure de Chimie de Lille (ENSCL), France</p>
12:00-12:20	<p>Meso and Large Scale Ignition and Burning Behaviours of a Flaxboard with Intumescent Coating and Nanoparticles J. Zhang, <u>M.A. Delichatsios</u>, M McKee FireSERT, Built Environment Research Institute and School of Built Environment University of Ulster, Newtownabbey, UK</p>
12:20-12:40	<p>Effect of Nanoadditives on Fire Retarded Styrene-Acrylate Based Polymer Coatings <u>B. Bodzay</u><sup>1</sup>, K. Bocz<sup>1</sup>, T. Igricz<sup>1</sup>, Zs. Bárkai<sup>2</sup>, G. Marosi<sup>1</sup> <sup>1</sup>Budapest University of Technology and Economics, Department of Organic Chemistry and Technology</p>



	<sup>2</sup> Dunamenti Tűzvédelmi Zrt. Budapest, Hungary
12:40-13:00	Preparation of Fire Retardant Synthetic Leather from Poly Vinylchloride Using Gamma Radiation <u>Hassan A.M.</u> , Hussain A.R., Hesham H.S., Soad Y. H 1) Egyptian Petroleum Research Institute 2) National Center For Radiation Research and Technology Atomic Energy Authority, Cairo, Egypt
13:00-14:00	LUNCH
	<b>Scientific Session 7: ENVIRONMETAL ASPECTS AND TOXICITY</b> Chair: Bob H. Howell, Center for Applications in Polymer Science Central Michigan University, USA J. E. J. Staggs, Energy Resources Research Institute, University of Leeds, UK
14:00-14:30	<b>Plenary:</b> New Approaches in Toxicity Requirements and Testing, <u>Jürgen H. Troitzsch</u> , Fire Protection Service, Germany
14:30-14:50	Hazards of Toxicity of Smoke Emission From Fire Retarded Materials <u>A. Stec</u> Centre for Fire and Hazard Science, University of Central Lancashire, Preston, UK
14:50-15:10	Using a Modified Cone Calorimeter to Predict the Performance of a Thermally Reactive Glazing System in a Furnace Test <u>V. Crook</u> <sup>1</sup> , A. Napier <sup>1</sup> , H. N. Phylaktou <sup>2</sup> , J.E.J. Staggs <sup>2</sup> <sup>2</sup> CGI International, Merseyside, <sup>2</sup> Univesity of Leeds, Leeds, UK
15:10-15:30	Taking Flame Retardants Green- Complying with Fire Safety and Environmental Standards <u>W.Hofland</u> , ICL-IP Europe, Amsterdam, The Netherlands representing EBFRI
15:30- 16:00	COFFEE BREAK
	<b>Scientific Session 7 cont.: ENVIRONMETAL ASPECTS AND TOXICITY</b> Chair: Serge Bourbigot, École Nationale Supérieure de Chimie de Lille, France Richard Horrocks, University of Bolton, UK
16:00-16:20	The Temperature-Controlled Cone Calorimeter: A Bench-Scale Screening Tool for Furnance Testing of Intumescent Coatings <u>R.J.Crewe</u> , J.E.J. Staggs, H.N.Phyloktou Energy Resources Research Institute, University of Leeds Leeds, UK

16:20-16:40	<p>Direct Numerical simulation to Estimate Effective Thermal Conductivity of Highly Porous Chars  <u>J.E.J. Staggs</u>  Energy Resources Research Institute, University of Leeds, Leeds LS2 9JT, United Kingdom.</p>
16:40-17:30	PANEL PRESENTATION
16:40-16:45	<p>Permanent Flame Retardant Finishing of Cotton, Polyamide and its Blends by Photochemical Immobilization of Vinyl Phosphoric Acid  <u>K.Opwis</u>, A.Wego, T.Bahners, E.Schollmeyer, Deutsches Textilforschungszentrum Nord-West e.V. Krefeld, Germany</p>
16:45-16:50	<p>The Anti-dripping Intumescent Flame Retardant Finishing for Nylon-6,6 Fabric  <u>Lingyao Li Guohua</u>, Chen Li Wei Liu, Sheng Zhang* Beijing University of Chemical Technology, China</p>
16:50-16:55	<p>Study of Phosphorous and Nitrogens Containing Economic Flame Retardant Materials and Their Textile Application <u>SeChin Chang</u><sup>1</sup>, Brian Condon<sup>1</sup>, Vincent J. Edwards<sup>1</sup>, Elena Graves<sup>1</sup> and Phillip J. Wakelyn<sup>2</sup>  <sup>1</sup>Southern Regional Research Center, USDA-ARS, New Orleans, USA, <sup>2</sup>National Cotton Council of America, Washington, USA</p>
16:55-17:00	<p>Amonium-EDTMP as New Additive for Polyamide-6: Compounding and Flame Behaviour  <u>T. Hoffmann</u><sup>1</sup>, D. Pospiech<sup>1</sup>, L. Häussler<sup>1</sup>, B. Kretzschmar<sup>1</sup>, S. Liebsch<sup>2</sup>, J. Kaltofen<sup>2</sup>  <sup>1</sup>Leibniz Institute of Polymer Research Dresden, <sup>2</sup> Zschimmer &amp; Schwarz Mohsdorf GmbH &amp; Co KG, Burgstädt, Germany</p>
17:00-17:05	<p>Investigation of the Fire Behaviour of Poly Ether Ether Ketone (Peek)-Based Polymers and Compounds. <u>P.Patel</u>, T.R.Hully, M.Percy<sup>†</sup>, J.Grasmeder<sup>†</sup>, D.Flath<sup>†</sup>  Centre for Fire and Hazards Science, University of Central Lancashire, Preston, Lancashire, UK.  <sup>†</sup>Victrex PLC, Hillhouse International, Thornton-Cleveleys, Lancashire, UK.</p>
17:05-17:10	<p>Use Various Modified LDHs as Fire Retardant Synergist and Application in Polymer  <u>D.Y. Wang</u><sup>1,2</sup>, A.Leuteritz<sup>2</sup>, R.N. Mahaling<sup>2</sup>, F.R.Costa<sup>2</sup>, U. Wagenknecht<sup>2</sup>, G. Heinrich<sup>2</sup>.  <sup>1</sup> Center for Degradable and Flame-Retardant Polymeric Materials, College of Chemistry, Sichuan University, China, <sup>2</sup> Leibniz Institute of Polymer Research Dresden, Germany</p>
17:10- 17:15	<p>Effects of Reaction Temperature on Tempering Phase in Preparation of Ammonium Polyphosphate (App-Ii)  <u>Liu Gousheng</u>, Zhao Hongyu, Yu Jianguo  School of Resources and Environmental Engineering, East China University of Science and Technology, Shanghai, China</p>
17:15-17:30	DISCUSSION
17:30-21:00	POZNAN CITY WALK

THURSDAY, 3.09.2009

8:00 – 8:30	COFFEE ON ARRIVAL
	<p><b>Scientific Session 8: MATERIAL FLAMMABILITY</b></p> <p>Chair:</p> <p>Ulrika Braun, BAM Federal Institute for Materials Research and Testing, Berlin, Germany  Anna Stec, Centre for Fire and Hazards Science, University of Central Lancashire, Preston, UK</p>
8:30 – 9:00	<p><b>Plenary:</b> The Effect of Polymer Properties on Burning Rate  <u>S.I. Stoliarov</u><sup>1</sup>, N. Safronava<sup>1</sup>, S. Crowley<sup>2</sup>, R. E. Lyon<sup>2</sup> SRA International, Inc., Linwood, USA  <sup>1</sup> SRA International, Inc., Linwood<sup>2</sup> Federal Aviation Administration, Airport and Aircraft Safety Research and Development Division, W. J. Hughes Technical Center, Atlantic City, USA</p>
9:00 – 9:30	<p><b>Plenary:</b> Recent Development of Flame Retardant Polymeric Materials in China  <u>Yu-Zhong Wang</u>  Center for Degradable and Flame-Retardant Polymeric Materials, College of Chemistry, Sichuan University, Chengdu, China  State Key Laboratory of Polymer Materials Engineering, Chengdu, China</p>
9:30 – 9:50	<p>Developments in Flame Retardancy of Epoxy Resins by Using New Reactive, Halogen – Free Curing Agent <u>Ewa Kicko-Walczak</u><sup>1</sup>, Ryszard M. Kozłowski<sup>2</sup>  <sup>1</sup>Industrial Chemistry Research Institute, warsaw, <sup>2</sup> Institute of Natural Fibres &amp; Medicinal Plants, Poznan, Poland</p>
9:50 – 10:10	<p>Modelling Thermo-mechanical Behaviour of Flame-retarded Fibre - Reinforced Epoxy Composites Following Exposure to High Temperature Environments  <u>E. McCarthy</u>, E. Kandare, B.K. Kandola, P. Myler, R.A. Horrocks  Centre for Materials Research and Innovation, University of Bolton, UK</p>
10:10 – 10:30	<p>Cohesion of Residues Obtained From Thermal Degradation of Filled Silicones  <u>S. Hamdani</u><sup>1</sup>, C. Longuet<sup>1</sup>, D. Perrin<sup>1</sup>, J-M. Lopez Cuesta<sup>1</sup>, F. Ganachaud<sup>2</sup>  <sup>1</sup>Centre des Matériaux de Grande Diffusion, Ecole des Mines d'Alès - 6, Alès Cedex, France  <sup>2</sup>Ingénierie et Architecture Macromoléculaire Montpellier Cedex, France</p>
10:30 – 11:00	COFFEE BREAK
	<p><b>Scientific Session 9: TECHNICAL APPLICATIONS</b></p> <p>Chair:</p> <p>Grzegorz Szychalski, Institute of Natural Fibres and Medicinal Plants, Poland  Giovanni Camino, Politecnico di Torino, Alessandria, Italy</p>
11:00 – 11:20	<p>Is TiP<sub>2</sub>O<sub>7</sub> Beneficial for Protective Coating Intumescent?  <u>J.Ciret</u>, S.Duquesne, S.Bourbigot,</p>

	Procédés d'Elaboration de Revêtements Fonctionnels (PERF), Ecole Nationale Supérieure de Chimie de Lille (ENSCL), France
11:20-11:40	Prediction of Ignition for Polymer Materials Containing Intumescent and Nano-Composite Fire Retardants <u>T. Steinhaus</u> , R.O. Carvel, J.L. Torero & G. Rein BRE Centre for Fire Safety Engineering, University of Edinburgh, UK
11:40-12:00	Silicon –Acrylate Rubbers as an Alternative For Acrylonitrile-Butadiene-Styrene in Halogen-Free Flame Retarded Polycarbonate Blends <u>B.Perret</u> , B.Schartel BAM Federal Institute for Material Research and Testing Berlin, Germany,
12:00-12:20	New Fire-safe Environmentally Friendly Polycarbonates <u>Z.K. Brzozowski</u> <sup>1</sup> , A.A. Stec <sup>2</sup> , Z. Wielgosz <sup>3</sup> <sup>1</sup> Central Institute for Labour Protection, Warsaw University of Technology, Faculty of Chemistry, Warsaw, Poland, <sup>2</sup> Uclan, School of Forensic and Investigative Sciences University of Central Lancashire, United Kingdom <sup>3</sup> Industrial Chemistry Research Institute, Poland
12:20-12:40	Influence of Different Additives on a Flame Retardant Formulation with Acrylate Copolymer <u>L.Karlsson</u> , A.Lundgren, T.Hjertberg Chalmers University of Technology, Department of Chemical and Biological Engineering, Göteborg, Sweden
12:40 – 13:00	Incorporating highest flame retardancy levels by using mineral flame retardants <u>J.Berneck</u> , Nabaltec AG, Schwandorf, Germany
13:40-14:00	LUNCH
14:00-14:20	Flame Retardancy of Fibre-Reinforced Epoxy Resin Composites For Aerospace Applications <u>Toldy</u> <sup>1, 2</sup> , B. Szolnoki <sup>2</sup> , Gy. Marosi <sup>2</sup> <sup>1</sup> Department of Polymer Engineering, Budapest University of Technology and Economics, Budapest, Hungary <sup>2</sup> Department of Organic Chemistry and Technology, Budapest University of Technology and Economics, Budapest, Hungary
14:20-14:40	A New Fire Resistant Halogen Free Cable Compound and its Mechanism <u>ZHU FENG</u> <sup>1</sup> , SHEN KANG <sup>2</sup> 1. Hangzhou JLS Flame Retardants Chemical Co, China 2. Beijing ADD-TECH Consulting, China
14.40-15.00	Corrosion caused by Flame Retardants Used in Electrical Applications <u>J.W.Mitchel</u> , X.Couillens Rhodia Polyamide, France
15.00 – 15:15	Conference Closing

