pinfa

Newsletter for non-halogen fire safety solutions

February 2012 – N° 16



Innovation

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pinfa North America ready for action

pinfa North America (Phosphorus, Inorganic and Nitrogen flame Retardants Association) is now formally incorporated and not-for-profit status is being ratified. This follows the launch decision announced in spring 2011 by the US Society of Plastics Engineers (SPE www.4spe.org) and leading US flame retardant and masterbatch producers. The organisation will be the counterpart of pinfa Europe, with FRX Polymers, Clariant and Nabaltec being the founding members. The association will provide technical information and technology exchange on halogen-free, innovative fire safety solutions with sound environmental and health profiles. Pinfa North America will engage specifically in the local market and regulatory context, and co-operate globally with pinfa activities in Europe and Asia.

Companies interested in joining pinfa North America should contact Maggie Baumann, FRX Polymers at MBaumann@FRXpolymers.com.

See: https://www.4spe.org/sites/default/files/pinfa.pdf

iNEMI HFR-Free Leadership Project Update

The objective of the iNEMI Halogenated Flame Retardant Free Leadership project is to identify technology readiness, supply chain capability, and reliability characteristics for HFR-free alternatives to conventional printed circuit board materials and assemblies looking at both the electrical and mechanical properties of these materials. The project is part of iNEMI's "Environmentally Conscious Electronics" target action. iNEMI, the International Electronics Manufacturing Initiative, is a not-for-profit R&D consortium of more than 85 leading electronics manufacturers, suppliers, associations, government agencies and universities whose mission is to forecast and accelerate improvements in the electronics manufacturing industry for a sustainable future. Below we provide an update of the HFR-Leadership project.

HFR-Free PCB Materials Work Group (2008-2012)

In 2008, the electronics industry was concerned with both the thermo-mechanical affects and the laminate supplier's capacity/capability of the transition to HFR-Free laminates. The iNEMI Printed Circuit Board (PCB) Materials working group was initiated to generate a methodology for evaluating the reliability and material properties of these new laminates for the Desktop and Notebook market segments. A "Test Suite Methodology" (TSM) was developed, including both modified IPC laminate test methods and some non-traditional tests applied to the bare laminate. Each test method was evaluated for 6 materials at several test sites to understand the variability of the test methods. The WG concluded that 1) the HFR-Free laminates evaluated had properties that would support the transition to HFR-Free products, 2) the TSM allows selection of the most cost effective laminate, 3) the laminate suppliers have the capability to supply the volumes required for the transition, 4) the laminate suppliers are willing to provide the Industry with the iNEMI TSM data for HFR-Free laminates upon request.

HFR-Free Signal Integrity Working Group (2009-2011)

In 2009, the electrical properties of most HFR-free printed circuit board (PCB) materials on the market were causing significant design problems for high-speed digital systems such as PCs, servers and telecommunication products. In order resolve these problems, the iNEMI HFR-free Signal Integrity Working group, with 16 member companies, identified the critical electrical parameters that affect signal integrity and are unique to HFR-free PCBs, developed a common way to measure the parameters, defined general limits on HFR-free dielectric performance and communicated these to material manufacturers. Additionally, the working group identified HFR-free materials for testing, and constructed a design data base comparing measured material properties to the specified performance limits, thus providing a comparison tool for PCB materials for design purposes. This project has effectively 1) united a large portion of the industry (electronics equipment design and manufacture, PCB producers) concerning design of high-speed buses on HFR-free PCB's, 2) defined a unified approach to mitigate the challenges and 3) paved the way for member companies to produce "green" HFR-free computing products.

Text supplied by Stephen Tisdale, Intel, with thanks.

iNEMI statement on the definition of "Low Halogen electronics"
http://thor.inemi.org/webdownload/projects/ese/HFR-Free/Low-Halogen_Def.pdf

"iNEMI HFR-free leadership program", S. Tisdale, RC Pfahl, H Fu, in: 4th International Microsystems, Packaging, Assembly and Circuits Technology Conference, 2009. IMPACT 2009, 21-23 Oct. 2009, pages 594 - 597 http://ieeexplore.ieee.org/xpl/freeabs_all.jsp?arnumber=5382255

EU low voltage, halogen-free cables standards published

CENELEC, the European Committee for Electrotechnical Standardisation, has published standards for halogen-free, low voltage cables, applicable as EU harmonised standards under Directive 2006/95/EC. Four different new standards concern low-smoke, low-voltage cables with special fire performance: single-core, non-sheathed cables and flexible cables, both with thermoplastic and with cross-linked insulation. The four standards were published on 17th January 2012 and are valid through to 2014: EN 50525-3-11:2011, EN 50525-3-21:2011, EN 50525-3-31:2011 and EN 50525-3-41:2011. These standards cover fire-performance cables for voltages up to 450/750 V, for uses including consumer and industrial equipment.

EU Commission low voltage standards page: http://ec.europa.eu/enterprise/policies/european-standards/documents/harmonised-standards-legislation/list-references/low-voltage/

CENELEC: www.enelec.eu

PIN flame retardant in innovative scaffolding

RH PRODUCTS (Norway) patented scaffolding is made of recyclable plastic, offering cost advantages compared to aluminium and better safety and lower weight compared to wood. Fire safety is essential, because building sites pose specific risks of accidental fires (welding, work tools) and worker safety and egress issues. RH PRODUCTS scaffolding uses Paxymer's MB "green flame retardant" solution, which is based on PIN FRs and claims low smoke, no drip, no soot and conformity to UL94-V0, GWFI 960°, EN-50085. As part of the UNEP's pilot programme of POPs-free (Persistent Organic Pollutants) product development, testing by the Austrian Environment Agency (EAA) showed no detectable presence of 28 POP substances. This innovative, PIN FR fire safety treated, recycled plastic scaffolding has significant potential in markets where certain halogenated fire safety solutions are no longer used.

Photo copyright RH PRODUCTS. More information: http://www.rhproducts.no and www.paxymer.se

UK fire statistics continue to show improvement

Fire services attended 287 000 fires in the UK in the year 2010-2011, 5% fewer than the year before. Fire deaths also fell by 28, to 388 deaths/year, compared to a highest level of 1 096 deaths in 1979. Fire injuries however increased slightly: +5% to 11 100, but still consistent with a long term trend downwards. The main cause of accidental home fires was the misuse of equipment/appliances. The main source of ignition was cooking appliances, accounting for half of all accidental home fires.

Fire Statistics Great Britain 2010-2011: www.communities.gov.uk/documents/statistics/pdf/568234.pdf

Analysis to improve flame retardant textile application

Phosphorus-based flame retardants are one of the PIN FR solutions for ensuring fire safety of textiles, offering environmentally responsible profiles. They can be used on materials which are highly flammable if not treated, such as cotton or polyester. To ensure appropriate fire protection and also optimise flame retardant consumption and finished textile quality, it is important to monitor the application process. Applied Rigaku Technologies has launched a new tool to ensure this monitoring of phosphorus FRs, rapidly, reliably and without affecting the treated textile. The equipment uses energy dispersive X-ray fluorescence (XRF) to analyse phosphorus flame retardants on textiles.

Source: www.rigakuedxrf.com/press/2011PR_App1127%20final.pdf
Application report on request: http://www.rigakuedxrf.com/edxrf/app-notes.html?id=1127_AppNote

Polymer and clay fire treatment for textiles

Researchers at Texas A&M University have developed a water-based nano-film coating for textile fibres and foams, based on a polymer – clay composite, which offers flame retardancy whilst enabling the materials to remain soft and flexible. The technology is adapted from "intumescents" used to protect steel and concrete beams against structural failure due to heat during fires. When touched by a flame, the nano-coating swells up "like beer foam", producing tiny bubbles in a protective barrier. The polymer layers developed are so thin (1 / 50 000 th the width of a hair) that they can cover each individual fibre. Fire tests have shown the effectiveness of the treatment on cotton textiles, which are naturally highly flammable. Combinations of positive and negative charged polymer layers can ensure that softness is maintained. Further research is needed to render the coating durable. The technology was presented at the US American Chemical Society's 242nd National Meeting, August 2011.

See: http://www.newswise.com/articles/a-nano-environmentally-friendly-and-low-toxicity-flame-retardant-protects-fabric and http://www.sciencenews.org/view/generic/id/333924

"Flame-Retardant Materials: Intumescent All-Polymer Multilayer Nanocoating Capable of Extinguishing Flame on Fabric", Advanced Materials (Wiley), Vol. 23, Issue 34, page 3868, 2011. Y-C Li et al. Contact: jgrunlan@tamu.edu

Tighter fire safety requirements in French hotels

1st January 2012 saw the entry into application of updated fire safety regulations for French hotels. Smaller hotels had until this date to submit to authorities a calendar for works necessary to ensure conformity to 2006 fire safety regulations, as updated in October 2011, covering aspects such as fire alarm systems, egress stairs, fire blocking doors, information and training. This follows a report in May 2011 which concluded that better coherence was needed between different regulations applicable to hotels, and that it was not feasible to apply tighter fire safety regulations to hotels offering "social housing". France has suffered a series of tragic hotel fire deaths since the Paris-Opéra hotel fire killed 15 people in 2005, including fatal hotel fires in Paris, Marseille and La Rivoire near Chambery in 2011.

"Arrêté du 26 octobre 2011 portant approbation de diverses dispositions complétant et modifiant le règlement de sécurité contre les risques d'incendie et de panique dans les établissements recevant du public (petits hôtels) ": http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000024725239&categorieLien=id#

CENTEXBEL fire safe textiles for a changing society

pinfa participated in the Belgian Textile Research Centre CENTEXBEL conference "Fire-safe textiles, foams and composites for a changing society", Ghent, 23-24th November 2011. Philippe Salemis, pinfa General Secretary, presented the pinfa vision of continuously improving environmental and health profile of fire-safety solutions through the use of phosphorus, nitrogen and inorganic based performance compounds. pinfa flame retardants aim to be non-toxic, to not migrate out of finished products, not accentuate toxicity or corrosive effects of gases in case of fire, be compatible with recycling and degrade or remain neutral in the environment. pinfa works to promote these objectives through initiatives such as the EU "ENFIRO" project (life cycle assessment of environment-compatible flame retardants) and the US Environmental Protection Agency's "Design for the Environment" programme. A number of conference participants expressed interest in pinfa and its activities.

CENTEXBEL: http://www.centexbel.be/fr/conf%C3%A9rence-internationale-retardateurs-de-flammes

TCO criteria for short throw projectors

The health, environment and worker protection label "TCO" has published criteria for short and ultra-short throw video projectors. Such projectors are increasingly used in education and business because they can be placed very close to the screen. The new TCO criteria exclude organically bound halogen from parts >25g and exclude all PBB and PBDE brominated flame retardants completely, including from printed wiring boards. Fire safety standards can therefore be achieved by a combination of appropriate safe electrical design, non-flammable or less flammable materials and PIN flame retardants.

TCO Certified: http://tcodevelopment.com/pls/nvp/document.show?cid=4146&mid=931

Other News

Meaningless … "100% chemical free" ! It makes no sense, but increasingly often, we see adverts claiming just that. The Royal Society of New Zealand's 2011 Manhire Prize for non-fiction creative writing was won by Joanna Wojnor's essay with that title, in which she explains that chemistry is everywhere, and that we humans are made up entirely of chemicals. "Chemicals are neither good nor bad. They just are." Ms Wojnor notes that the word chemical is increasingly misused to suggest something man-made or manufactured, but reminds us that whether chemicals "come from a natural source, or are made in the factory or lab, if they have the same structure they will possess the same properties".

New Zealand Royal Society: http://www.royalsociety.org.nz/2011/11/17/2011manhire-winners-announced

Glossary and abbreviations

Please refer to the pinfa Glossary of abbreviations:
http://www.pinfa.eu/library/glossary-of-abbreviations

Agenda

Events with active pinfa participation are marked: ►

6-8 March 2012	Cologne, Germany	Cables 2012 (AMI): http://www2.amiplastics.com/Events/Event.aspx?code=C441&sec=2105
14-16 March 2012	New York	5th International Symposium on Tunnel Safety & Security http://www.istss.se/en/Sidor/default.aspx
20-22 March 2012	Cologne, Germany	Green Polymer Chemistry 2012 www.amiplastics.com
25-29 March 2012	San Diego, California	ACS Fire and Polymers VI conference http://portal.acs.org
1-5 April 2012	Orlando, Florida	►National Plastics Exhibition www.npe.org , SPE Conference www.spe.org
16-17 April 2012	Shanghai, China	3rd International Conference on Flame Retardants (SKZ) http://www.skz.de/en/training/conferences/international_conference/1499..html
18-19 April 2012	Miami, Florida	Polymers in Cables (AMI) http://www2.amiplastics.com/Events/Event.aspx?code=C451
18-21 April 2012	Shanghai, China	Chinaplas (Asia Plastics and Rubber Trade Fair) http://www.chinaplasonline.com
8-10 May 2012	Indianopolis, Indiana	American Coatings Show (Vincentz Network) http://www.american-coatings-show.com/
13-16 May 2012	Strbske Pleso, Slovakia	7th International Conference on Wood & Fire Safety http://www.sfs.au.com/documents/Wood%20&%20Fire%20Safety%20Conference%2020121.pdf
20-23 May 2012	Cambridge, Massachusetts	BCC Flame Retardancy conference http://www.bccresearch.com/conference/
23-24 May 2012	Würzburg, Germany	Trends im Brandschutz / Flammschutzmittel (SKZ) www.skz.de
4-6 June 2012	Lausanne, Switzerland	ETTC European Technical Coatings Congress www.etcc2012.ch
11-14 June 2012	Las Vegas	NFPA Conference and Expo (US National Fire Protection Association) http://www.nfpa.org/displayContent.asp?categoryID=943
14-15 June 2012	Denver, Colorado	►Fire Retardants in Plastics (AMI) http://www2.amiplastics.com/Events/Event.aspx?code=C448&sec=2199
9-12 Sept. 2012	Berlin, Germany	►Electronic Goes Green 2012+ www.egg2012.de
27-28 Sept. 2012	Chicago	►2nd International Conference on Fires in Vehicles (FIVE) www.firesinvehicles.com
17-20 Oct. 2012	Hefei, China	9th Asia-Oceania Symposium on Fire Science and Technology http://aosfst.csp.escience.cn/dct/page/1