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f Building the future for flame retardants in E&E

On 24th June 2010, pinfa held a workshop focusing on “Building the future for flame retardants in E&E”. Over 60 participants attended, including representatives from the entire value chain (compounders, OEM manufacturers and flame retardant producers), as well as from national and international regulators (European Commission, German Federal Environment Institute UBA) and civil society organisations (International Chemical Secretariat ChemSec, European Consumers’ Organisation BEUC).

The first objective of the workshop was to further improve communication between the supply chain, other stakeholders and phosphorus, inorganic and nitrogen (PIN) FRs producers on the different needs of each group. The workshop also sought to discuss the practical applications and future directions in the management of flame retardants, and served as an open forum for all stakeholders.



During the day, the audience heard challenging presentations and engaged in constructive discussions. The first session of the workshop focused on external drivers on the market, from regulation to activities of campaign groups (NGOs), with presentations of DG Enterprise and ChemSec. The second session focused on the lessons learned by the supply chain in transitioning towards PIN FR technologies with presentations from DSM Engineering Plastics, Philips Lighting and iNEMI - International Electronics Manufacturing Initiative. The final session was dedicated to health and environment, and the work being done to close data gaps on PIN FRs with presentations from UBA, DG Sanco, Vrij Universiteit Amsterdam.

The participants of the workshop agreed that the flame retardants industry is in the middle of a technological transition. The general message was that this transition is now in progress, and that it is important for stakeholders to continue the dialogue. All participants also stressed the importance of cooperation between all stakeholders, especially in sharing, clarifying and spreading information about flame retardants.



Programme of the workshop at http://www.pinfa.eu/uploads/Mediaroom/pinfa_E&E_WKS_Agenda_20100624_Final.pdf.

For more information, contact the pinfa Secretariat at pinfa@cefic.be.

f Melamine Cyanurate: classification and labelling updated

As part of the REACH registration process, melamine cyanurate (CAS 37640-57-6) was tested in 2010 according to certain environmental and toxicological aspects. As part of a pre-study, rats were fed melamine cyanurate for one week. The substance revealed a greater toxic hazard to the kidney than was previously known. Therefore, the classification and labelling of melamine cyanurate needs to be changed to:

- Xn; R48/22 = “danger of serious damage to health by prolonged exposure” / “harmful if swallowed” according to Directive 67/548/EWG or 1999/45/EC and
- STOT (RE) Cat.2 (H373) = “specific target organ toxicity (repeated or long term exposure)” according to regulation (EC) 1272/2008.

Further testing is still ongoing to confirm the findings. A 90-day feeding study is ongoing at the National Center for Toxicological Research (NCTR) in the USA. Classification and labelling will be reviewed after the results of this study have been published.

This new information is relevant to people handling the pure chemical melamine cyanurate, such as production and polymer formulation workers. Consumers and users of end products (e.g. electric and electronic equipment) which contain melamine cyanurate do not get into direct contact with the substance and any ingestion of it is very unlikely,



because it is firmly embedded in the polymer matrix. It will also not evaporate from polymers because the vapour pressure is extremely low.

See *pinfa* news release:

http://www.pinfa.eu/uploads/Mediaroom/PINFA-News_Melamine_Cyanurate_20100716.pdf

f Fire dangers in road vehicles

For the first time, a US nationally recognised standards document confirms the fire safety problems of cars and other road vehicles. NFPA 556 "Guide on Methods for Evaluating Fire Hazard to Occupants of Passenger Road Vehicles" has now been approved after consultation, and is applicable from 21st June 2010. The document addresses the fire hazard to vehicle occupants relating to materials used in the vehicle interior (seats, fittings ...). The high loss of life because of road vehicle fires is underlined. Current requirements for materials used in vehicle interiors (FMVSS 302) date from 1969 and limit horizontal flame spread only and do not address heat release, smoke production or melting of materials including flaming drips. The Guide provides test data concerning vehicle fires, proposes test scenarios and indicates strategies to reduce fire risk.

NFPA (US National Fire Protection Association) www.nfpa.org

f Smoke alarm legislation

The Canada State of British Columbia is making installation of smoke alarms in existing buildings obligatory. The law applies to private homes, apartments, and all rooms used for sleeping such as hotels and temporary sleeping accommodation. France passed a similar law in February this year (2010), making smoke detectors obligatory in all private lodgings by 2015 (public and commercial buildings are already covered by existing legislation). Similar legislation already exists in parts of Belgium and Australia (New South Wales).

NFPA (US National Fire Protection Association) www.nfpa.org

f Fire dangers of modern house contents

Underwriters Laboratories (UL), USA, is currently investigating the dangers of toxic gases to firefighters. As part of this work, they have compared fire behaviour, in full-scale test conditions, between a "modern" living room (with non fire-safed furniture and furnishings), and a "legacy" situation, with furniture and furnishings purchased in antique shops to simulate the situation decades ago. After ignition with a small flame, the "modern" room reached flashover (ignition of all combustible materials present, leading to temperatures around 1000°C and unsurvivable conditions) in around 4 minutes, compared to nearly 30 minutes for the "legacy" room. The work is also showing that dangerous combustion gases continue to be released long after flames have been extinguished, posing a risk to firefighters if breathing apparatus is removed. In another paper resulting from the same project, presented at Interflam 2010, data for time to emission, heat and smoke release from 43 different synthetic and traditional household materials are presented. Mattresses and plastics were amongst the materials showing fastest ignition times and highest heat release.



Sources regarding escape times:

M. Hirschler, *Fire Safety & Technology Bulletin* vol. 5, n° 6, June 2010: www.gbhinternational.com

UL News 2010-1:

http://www.ul.com/global/documents/corporate/aboutul/publications/newsletters/fire/fsa_issue_1_2010.pdf

UL tests on different materials:

"Characterization of combustion products from flaming materials", T.Z. Fabian, J. L. Borgerson, P.D. Gandhi, at *Interflam 2010* www.intercomm.dial.pipex.com

Summary of UL report: [http://www.ul-](http://www.ul-switzerland.ch/global/documents/offerings/industries/buildingmaterials/fireservice/WEBDOCUMENTS/EMW-2007-FP-02093%20-%20Executive%20Summary.pdf)

[switzerland.ch/global/documents/offerings/industries/buildingmaterials/fireservice/WEBDOCUMENTS/EMW-2007-FP-02093%20-%20Executive%20Summary.pdf](http://www.ul-switzerland.ch/global/documents/offerings/industries/buildingmaterials/fireservice/WEBDOCUMENTS/EMW-2007-FP-02093%20-%20Executive%20Summary.pdf)

f Initiatives for green chemicals

A number of initiatives are underway in the USA to make information on green chemicals more accessible for product manufacturers and consumers, in particular through Ecolabels and environmental standards. Chemical & Engineering News (American Chemical Society) has published a summary update. The importance of the EPA (Environmental Protection Agency) "Design for the Environment" (DfE) programme is emphasised, supported by the American Chemical Society's [Green Chemistry Institute](#) (GCI). This should lead to a [Greener Chemical Products and Processes Standard](#) to be formalised by the American National Standards Institute. The principle, as promoted by the NGO [Clean Production Action](#), is that of "informed substitution", that is moving away from the most problematic chemicals and developing a better understanding of which chemicals are more sustainable over time. For pinfa, this logic, alongside high fire safety and formulation performance, is behind the ongoing push to develop PIN flame retardants in a wide range of consumer applications.

S. Ritter, *Chemical & Engineering News*, n° 19, vol. 88, pages 38-41, May 2010:

<http://pubs.acs.org/cen/science/88/8819sci1.html>

f E&E manufacturers choose PIN-FRs

According to the NGO International Chemical Secretariat (ChemSec), the electronics industry has already begun the transition to Phosphorus, Inorganic and Nitrogen (PIN) flame retardants. The organisation lists more than 500 product models on the market today which are already free or "almost free" of halogenated flame retardants, with products from 28 companies. The report quotes commitments and positions from Acer, Apple, Asus, Cisco, Dell, Electrolux, Fujitsu, HCL, Hitachi, HP, JVC, Lenovo, LG Electronics, Microsoft, Motorola, NEC, Nintendo, Nokia, Panasonic, Philips, Ricoh, Samsung, Sharp, Sony, Sony Ericsson, Toshiba, Very PC, Wipro.

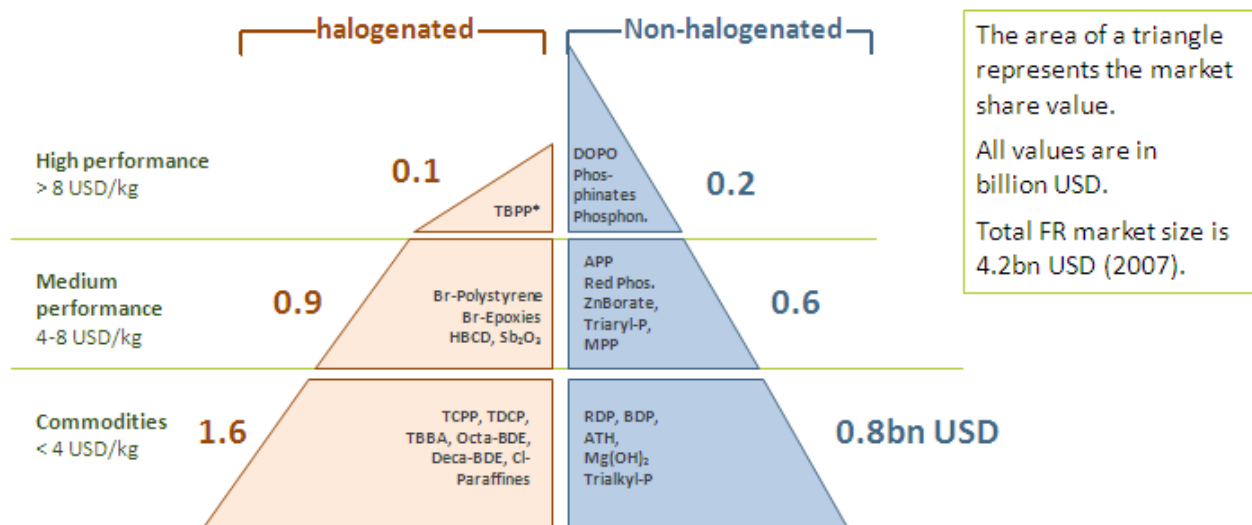
ChemSec report May 2010 "Electronics Without Brominated Flame Retardants and PVC – a Market Overview"

<http://www.chemsec.org/news/539-chemsec-report-lists-500-products-free-from-brominated-flame-retardants-and-pvc>



f Market moves towards non-halogenated FRs

Latest industry trends show an ongoing market shift towards non-halogenated products for fire safety, particularly in high-performance areas of application.



Source: SRI Consulting Flame Retardants report 2008, Industry estimates

f Over 300 home fire deaths in France

French official fire statistics for 2009 show a drop in the number of recorded fires, but an increase in the number of fires in homes and in public establishments in which people sleep. Home fire casualties increased by >10% from 2008 to 327 deaths and over 10,000 injuries. A total of over 86 000 fires were recorded in homes and over 2 100 in public establishments in which people sleep.

French official fire statistics:

http://www.interieur.gouv.fr/sections/a_votre_service/statistiques/securite_civile

f European research project assesses alternative FRs

The European Commission-funded project ENFIRO is developing detailed "chemical alternatives assessment" case studies for substitution of specific brominated flame retardants in a number of different applications. Non-halogenated flame retardant alternatives have been identified for each application. The case studies include evaluating and comparing the alternatives as regards human health and environmental impacts, technical performance, economic feasibility and social justice. To complete literature data, tests of fire performance, leaching and weathering are being carried out on a number of polymer – flame retardant combinations.



ENFIRO project: www.enfiro.eu

Lowel Centre for Sustainable Production Alternatives Assessment Framework:
http://www.sustainableproduction.org/downloads/FinalAltsAssess06_000.pdf

f Recent fire events in public transport

The importance of fire safety requirements in public transport systems is shown by three recent fire events, in which fortunately nobody was killed and nobody seriously injured.

A fire in Boston, Massachusetts, Red Line subway, near Downtown Crossing Station, resulted in smoke inhalation hospitalisation of 20 persons. The fire was apparently started by an electrical spark between lines igniting track grease.

A fire in the cockpit of a United Airlines Boeing 757 flying from New York to Los Angeles was extinguished by the crew, with no injuries, before making an event-free emergency landing in Dulles. 112 people were on board. The fire apparently started in a window heater.

A fire started in a train in Scotland, following derailment caused by rock fall boulders on the line between Glasgow and Oban. The train half-fell over a 15m embankment and fires started in spilled diesel fuel. Staff and passengers were able to extinguish the fire and all passengers were able to escape.

In public mass transit systems and aircraft, flame retardants are necessary to achieve strict fire resistance and smoke requirements for all materials.

Boston subway fire, 29th April 2010: <http://www.thebostonchannel.com/news/23316251/detail.html>

AA cockpit fire, 21st May 2010: <http://www.msnbc.msn.com/id/37189240/ns/travel-news/#storyContinued>

Glasgow – Oban Scotland train accident, 6th June 2010:

http://news.bbc.co.uk/2/hi/uk_news/scotland/glasgow_and_west/10251545.stm

f Conference presentations

pinfa participated with presentations at the Fire Retardant Coatings Conference in Berlin, Germany, in June 2010 and at Interflam in Nottingham, UK, in July 2010. For a copy of the presentations please contact the pinfa Secretariat at pinfa@cefic.be.



f Agenda 2010 - 2011

15-17 Sept.	Shanghai, China	5th International Flame-retarding Technology and Flame-retarding Material Industry Exhibition www.flameexpo.com/en
17-20 Sept.	Chengdu, China	ISFRMT 2010 - International Symposium on Flame-Retardant Materials and Technologies http://chem.scu.edu.cn/ISFRMT2010/Committee_e.htm
23-24 Sept.	Zurich, Switzerland	3rd WEEE Forum Conference "Visions for WEEE management and policies 2020" www.weee-forum.org
29-30 Sept.	Gothenburg, Sweden	FIVE – conference on fires in road and rail vehicles http://www.firesinvehicles.com/en/Sidor/default.aspx pinfa present as exhibitor
19-22 Oct	Lisbon, Portugal	NFPA-APESI Fire & Security 2010 www.nfpaportugalconference.com
20-23 Oct	Santander, Spain	CFD2010 – Combustion and Fire Dynamics www.cfd2010.unican.es
27 Oct -3 Nov.	Dusseldorf, Germany	K 2010, International Trade Fair for Plastics and Rubber www.k-online.de pinfa present as co-exhibitor (Hall 8a/H32)
4-5 Nov.	Cannes, France	Textiles Coating and Laminating 2010 www.intnews.com/TCL2010
8-11 Nov.	Vienna, Austria	Going Green Care Innovation – Electronics and the Environment http://www.care-electronics.net/CI2010/ pinfa present as exhibitor
17 Nov.	Moreton in Marsh, UK	Re10: Fire Related research and Developments: https://www.eventsforce.net/ife/frontend/reg/thome.csp?pageID=3614&eventID=15
17-18 Nov.	Heathrow airport, UK	Electrical and Electronic Equipment and the Environment Conference 2010 http://shop.era.co.uk/products.asp?recnumber=1371
7-9 Dec.	Düsseldorf, Germany	Fire resistance in plastics 2010 (AMI) http://www2.amiplastics.com/Events/Event.aspx?code=363&sec=1208 pinfa present as sponsor & exhibitor
31 Jan – 2 Feb 2011	San Francisco, California, USA	Fire and Materials 2011 (InterScience): http://www.intersciencecomms.co.uk/html/events/fm11cfp.htm
15-17 Mar. 2011	Köln, Germany	Cables 2011 (AMI): http://www2.amiplastics.com/Events/Event.aspx?code=C376&sec=1366