FIREaway!
THE EFRA NEWSLETTER

EFRA
European Flame Retardants Assosiation
December 2015

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cefic sector group

Editorial

Taking care at Christmas

That was 2015 – Welcoming 2016

I would like to take this opportunity to send all our readers, colleagues and partners seasonal greetings. We wish you all a very Happy Christmas, a tremendous New Year and foremost a fire safe 2016.

As we go home to celebrate mid-winter and bask in the glow of festive lights, let's remember to never leave candles unattended. Electrical lights feature in many holiday homes, please be careful and switch them off at source, before you go up to bed.

2015 has been a productive year for the European Flame Retardants Association (EFRA). We have extended our relationships with regulators, with the aim of helping to improve fire safety at home. It remains in Europe a debated subject with little progresses if any for the textiles and furniture to be found at home. There are examples of tragic accidents which can occur during celebration period which may be avoided by taking the right measures and using fire safe goods.

We are also engaging with the UK authorities involving EFRA regarding their revision of FFRs. Keeping the fire safety at their current high level must be a prerequisite. We may say that very probably maintaining a high level of fire safety sharply reduces the probabilities of tragic events like the one reported during Halloween period in UK in 2014. Fire safety cannot be achieved without some sound rules and standards based on scientific evidences.

Our latest video focusing on fire safety standards is an achievement we take particular pride in. This video shows why and how standards protect us from fire in our daily life. You can watch it on our website or by clicking on this link (www.cefic-efra.com/index.php/en/regulatory-centre). Look out for the review of our video further on in this issue. There has also been a noticeable closer cooperation with numerous stakeholders such as Trade Associations, OEMs, ends users and NGOs, to whom we talk about and join forces to improve the fire safety in our daily life.

Greater efforts will be made to promote the circular economy. We also see that the outcome of the Climate Change Talks in Paris asked for measures where we as EFRA can be a contributor and assist in such a new world for the future of our children.

And we are very excited about all that is ahead of us in 2016. We are determined to make progress with projects around recycling plastics with FRs. Recycling is to our understanding a crucial need for our modern society to remain sustainable. Landfilling or burning waste for possible energy recovery is a huge loss of valuable raw materials which cannot be reproduced at least in the short term. As we are aiming at fire safety we quite naturally look to recycling plastics which are fire safe.

A typical example of our commitment to a sustainable process is the Creasolv® project which will move forward in close cooperation with the Dutch Ministry of Environment and the complete value chain. This project is aimed at having a complete closed loop from production and service life to end of life and raw material recovery of products used for building insulation being able to produce new plastics and reuse the valuable bromine.

More details can be found inside this newsletter.

Editorial

EFRA members have been convinced of the necessity to recycle, for a number of years. EFRA has initiated and supported long term projects aimed at developing best technique for recycling purposes from early 2008.
Numerous details could be found on EFRA's **website**.

There are several other projects in which EFRA is involved and we will be happy to share them in the next incoming newsletter.
For unexpected reasons, we had to change the editorial team, which caused a delay in the newsletter. We have planned to modernize our newsletter for 2016 as well as our website which is now available in 3 languages, English, French and German. **Link to Efra website**

Let's now enjoy the festive period and on behalf of all EFRA team members I would like to wish you a very fire safe 2016,

Philippe Salemis
Director, EFRA

Coming events

EFRA will be happy to welcome you on its booth during the following events:

15th International Electronics Recycling Congress IERC 2016

January 19 – 22, 2016
Salzburg, Austria

The IERC 2016 is the recycling industry's most important event, bringing together over 500 producers, recyclers, equipment manufacturers, recycling associations, refurbisher, standards bodies, NGOs, regulators and many more.

For further details:
www.icm.ch/ierc-2016

16th International Automobile Recycling Congress IARC 2016

March 16 – 18, 2016
Berlin, Germany

The congress is a platform to exchange the latest information, to meet your business partners and to get easy access to new potential clients.

For further details:
www.icm.ch/iarc-2016

The EU Flower – Ecolabelling

The European Union (EU) Ecolabel Flower programme awards environmental labels to products within different product categories, taking into account multiple criteria based on life-style considerations. The European Flame Retardants Association (EFRA) closely follows 11 of the EU flower's 38 product groups, focusing on those criteria which impact on relevant chemicals. The criteria for the various product groups are typically revised every four years; various stakeholders offer their input throughout the process, and EFRA is actively involved in giving its input regarding relevant product groups.

The EU ecolabel flower authorities are currently revising their criteria for footwear, computers, notebooks, televisions, and wooden furniture. The revision process is approaching its final stages, with the majority of changes expected in 2016. EFRA is concerned that even though Brominated Flame Retardants (BFRs) or Flame Retardants in general are rarely used in footwear and floor coverings, it is looking increasingly likely that they will be mentioned in the criteria documents for both product groups, and so excluded from them unless legally required - while the criteria for furniture seem likely to follow those for textiles and only allow BFRs to be used with certain restrictions.

The EU Flower eco-label criteria for computers, notebooks and TVs are viewed as unnecessarily complex when it comes to Flame Retardants, particularly regarding BFRs. Authorities make the distinction between those components where there are the strictest criteria for printed wiring boards and cables, where even recycling in developing countries is taken into account

EFRA has supported the Joint Research Council (JRC) to address several issues regarding criteria development in these product groups, so as to prevent unjustifiable bans and potential regrettable substitutions in these areas.

EFRA has observed that the EU Flower authorities recently adopted a horizontal approach to categorising chemical substance product groups, dividing them into three hazard classes. Class one is for substances that are deemed highly hazardous; these substances are prohibited. Class two covers medium hazards; these substances can be used if derogations are obtained because no better alternatives are available. And class three are for substances offering very low hazards; there are no restrictions on this set of substances.

As the EU Flower ecolabel revision process continues EFRA is determined to give science-based inputs to the process, in order to ensure that substances used as flame retardants are treated correctly.

The Creasolv® PS recycling project moves forward

Significant progress has been made with the Creasolv® Polystyrene recycling project, which aims to develop a commercial solution for recycling materials containing Flame Retardants (FRs) in Building and Construction. Hexabromocyclododecane (HBCDD) is the primary FR contained within expanded polystyrene (EPS).

Industry recognised the need to build a demonstration PS (Polystyrene) recycling plant in order to address the End-of-Life challenges presented by HBCDD. The plan is to develop a recycling programme which would cover the implementation of the UNEP Stockholm and Basel Conventions in relation to recycling.

A Creasolv® PS recycling trial took place in the second-half of 2015, where recycling of grey EPS was tested in a pilot plant. The test showed that there was no polymer degradation, and that EPS foam made from the recycled material in combination with virgin material, showed properties comparable to foam obtained from purely virgin materials. Plans to build a demonstration Creasolv® PS recycling plant in 2016 continue to move forward.

This process will be able to remove the HBCDD which is a restricted substance found in PS foams but now replaced by a sustainable polymeric flame retardants which can be recycled safely.

The Creasolv® team are also seeking to reinforce a commitment to the Circular Economy (CE), where all recovered material is recycled back into a product stream.

Industry is committed to rolling out the Creasolv® project in the coming years, as quantities of waste material become available. There is a determination to close the loop of PS recycling and recovery of the valuable bromine by creating a truly sustainable Circular PS Economy.

Regulatory News
Endocrine Disruptors Developments

A technical meeting on the Joint Research Council (JRC) methodology for evidence screening of chemicals, developed in the context of the Impact Assessment on criteria to identify Endocrine Disruptors, took place in Brussels on November 6th. The aim of this technical meeting was to present to Member States, Members of the European Parliament, and all interested stakeholders in the methodology developed by the JRC to assess which chemicals may fall under the different options for criteria to identify endocrine disruptors.

Approximately 700 substances have been selected for review. **'The fact that substances are included in this screening exercise does not mean that the substances should be considered - even on a "working hypothesis basis" – as "endocrine disruptors" or "suspected endocrine disruptors", 'the rationale for most of the substances being included in this screening exercise is the availability of data, which is a pre-condition for this exercise' as clearly stated in the introductory part of the commission proposal.**

As the screening is done in the context of an impact assessment, it does not substitute or negate the evaluations of individual substances that are to be carried out under the respective chemical legislations. Therefore, the results of the screening exercise do not pre-empt the regulatory conclusions that may eventually be drawn from REACH or other regulatory processes.

Endocrine Disrupters Criteria Timings	
Roadmap	June 2014
Public Consultation	July 2015
Study 1 (IA)	April 2016
Study 2 (IA)	Q3 2016
Recommendation for criteria	Q3/4 2016
Adoption of the criteria	2017

For further details:
www.ec.europa.eu/health/endocrine_disruptors/events/ev_20151106_en.htm#b

Debunking the myth

Flame retardants: live savers or eco-villains

One of the ways the European Flame Retardants Association (EFRA) supports all flame retardant technologies, is to regularly de-bunk the myths which swirl around their members' products.

For example, despite the myth, flame retardants do work. They have been proven to work effectively in many different applications. The application of flame retardants in many products, such as electric and electronic equipment, furnishing, transportation and buildings, plays a key role in meeting fire safety standards and regulations. Flame retardant plastics can be recycled. Plastics containing FRs are fully compatible with the model of reuse, recycle and recover. And the fact is that toxins are released in any fire, so it makes no sense to target flame retardants in this context as they prevent fires! EFRA is convinced that flame retardants do not make fires more toxic. Studies like the one performed by SP Sweden a well-recognised institute on fire safety did show that even the contrary occurs.

According to the Royal Society of Chemistry's Environment, Health and Safety Committee (RSC), flame retardants are unlikely eco-villains. They are in common use; they vary widely in their toxicity and most are not very acutely toxic to humans. In fact Brominated Flame Retardants (BFR) exposure to the general population is very low. And yes, while concerns for humans and the environment have been identified, these need to be balanced against the very many and very real benefits BFRs bring to a wide range of products.

The RSC in fact seems to come down strongly on BFRs as much more likely to be life-savers. BFRs prevent or at least reduce the chances of fires igniting in the first place. They reduce the rate of combustion when fires do occur. By reducing the rate of combustion BFRs help give a longer response time to fire services, contributing to saving lives and lessening fire-related injuries. Unfortunately non-events are not recorded, so there's no statistical information available how often Flame Retardants have prevented a fire from ocurring

It is also noted that the presence of flame retardants in electronic products, furnishing and in buildings can play a key role in meeting fire safety standards and regulations. To summarise, BFRs play a critical role in reducing the impact fire has on people, property and the environment.

Electrical Bus Fires

Problems and Solutions

A series of fatal bus fire accidents around the globe has heightened public awareness of the danger of multiple-transport vehicle fires (buses and coaches). Public opinion is also demanding that more be done to prevent transport fires. EFRA members definitely see themselves as a major part of the solution when it comes to diminishing and controlling fires on buses and coaches.

Representing EFRA at the recent Busworld Conference, Lein Tange stated that 'studies on the fire safety of materials and components show that the number of bus fires could be significantly reduced or avoided altogether' when Flame Retardants (FR) are present. FRs significantly delay ignition in the early stages of fire, giving passengers a longer escape time. They also give fire services a greater response time, aiding public safety.

According to Tange, 'the European Commission had estimated that fire deaths can be reduced by a significant factor as a result of the use of FRs'. Flame Retardants remain a well proven tool when it comes to preventing transport fires from staring or spreading.

EFRA members work with bus and coach manufacturers in meeting their vehicles' specific flammability requirements across applications. In this field the vehicles' materials and components will have different properties and so will need different FR responses; there is no 'one-size fits all' solution when it comes to lowering the fire risk in buses and coaches.

The majority of bus fires start in the engine component but even a small fire in an electrical distribution centre can have disastrous results if a fire takes hold.

Much more attention is now being placed on end-of-life solutions for FR materials fitted into buses and coaches. There are a number of on-going projects focusing on FR WEEE plastics, exploring an improved environmental approach to tackle mechanical plastics recycling, chemical recycling, the incineration of FR plastics and a number of other FR end-of-life issues.

Reviewing EFRAs Fire Safety Video

EFRA has launched a new fire safety video which clearly shows how robust fire safety standards can help reduce the flammability of products and hence extend the time available to intervene or escape.

The 20 minutes video states that dangerous fires are increasing globally in frequency and severity, despite progress in fire detection technology and the robust regulatory framework which discourage lackadaisical approaches to fire safety. The increase in the number of fires is due in part to a growth in the number of products containing flammable synthetic materials.

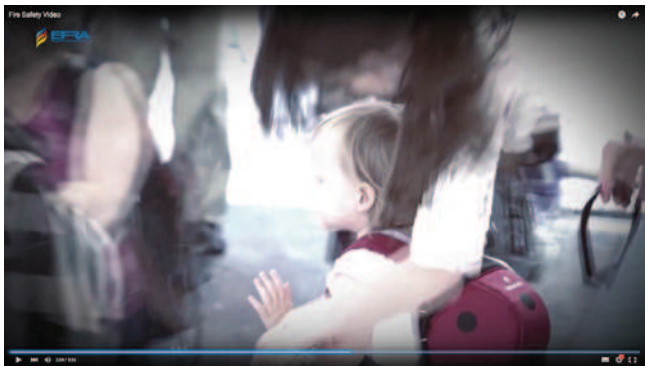
A key message of the video, which is that 'prevention is better than cure' is aptly conveyed by Chartered Fire Engineer and Former Chief Fire Engineer, Dominic Harrison.

The video informs clearly on the destructive power of fire, be that in homes, vehicles, private and public buildings.

Harrison shows that when fire standards are not as strong as they could be, there is a much shorter period for a fire to go from ignition to 'flash-over', i.e. when all combustible materials in the room flame at once.

The video is extremely informative on fire safety standards themselves and the major issues surrounding them. This video contains some technical explanations about why fire safety is needed and how it is achieved or can be improved.

We are given little-known facts that make one think differently about fire safety; a medium sized TV set, for instance, contains a mass of plastic equivalent to around 5 litres of petrol. You are reminded that the home can be a relatively dangerous place.

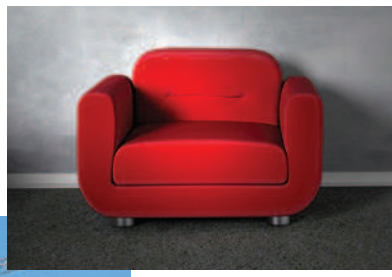


www.youtube.com/watch?v=4C2XR-a7-uk

There is an excellent case-study from the UK, which shows that due to high-performance fire standards in UK furniture regulations, fire deaths have been reduced by over two-thirds in 25 years.

Dr Jürgen Troitzsch, Fire and Environmental Protection Service consultant and author of the Plastics Flammability Handbook, has the last word on the video and provides a fitting summary: 'It is essential to promote products with high fire safety standards. There are still sectors where higher fire safety standards are desirable.'

Global Developments in Fire Safety Standards



Fire protection is essential to our daily life. Industrialized countries often value this lightly until the consequences of a serious fire incident affect local populations. With the increasing amount of globally sourced synthetic products on the market (often consisting of or containing flammable substances), it is essential that public authorities ensure that relevant fire safety standards, codes and regulations are maintained, regularly reviewed and strengthened in order to alleviate distressing fire injuries, loss of life and property.

Every day, the general public will routinely use one or more utilities that pose a fire risk: buildings, transport, electrical goods and furnishings, many of which require the addition of flame retardants to meet stringent fire protection standards; they are well-recognized as an essential tool in safeguarding fire safety.

There are several major independent organizations that develop standards, and are classified by their role, position and extent of their influence on local, national, regional (EU) and international standardization arena (CENELEC, CEN, ASME, ASTM).

The three largest and most established include the International Organization for Standardization (ISO), the International Electro-technical Commission (IEC) and the International Telecommunications Union (ITU). These three together comprise the World Standards Cooperation alliance (WSC).

The term 'standard' encompasses a wide array of technical activities that promote rules, guidelines specifications, best practices, design and installation and testing methods.

Developers of technical standards are generally experts in their field concerned with both interface standards and safety standards, which establish whether characteristics of a product or process are safe for life and the environment and also define and measure their behavior and performance.

One of the essentials for fire safety is to prevent fires being started by low energy ignition sources such as glowing items and open flames as well as preventing fire development by secondary ignition sources.

Examples included in testing to develop fire standards are:

Ignition source	Impingement [s]	Energy [kJ]	Max. Heat Flux [kW/m2]	Ignition source relevant for
Glowing				
Cigarette	180-300	6-7		Furniture, bedding
Welding sparks	< 30	< 100		Roofs, walls
Glow wires				E&E devices
Open flame				
Match	2-35	6	18-20	Building, transport
Lighter	30	24	16-24	Building, transport
Candle	30	15	6-37	Building
Bunsen burner - Small - Large	 30 30	50	 58 120	Fire testing Simulating open flames
Waste paper basket	360	3400	10-40	Building

(Source:Troitzsch J. 2014; Fire and Environment Protection Service)

These fire sources are used in all domains as a basis for reaction to fire standards in classification systems.
Fire Safety (FS) regulations, classification systems and fire testing have become increasingly more international as global markets have become interoperable, such as for maritime, aircraft and electronics requirements.
In Europe however and mostly under national control, are the policy standards for buildings, furnishings and railways, although there has been further harmonization of construction products and inter-country rail systems towards more international FS standards.
European Standards (EN) for reaction-to-fire are specified by the European Commission.
The test standards are worked out by CEN, CENELEC and ETSI:

- their Technical Committees (TC) are responsible for preparation of the EN. (ISO/TC92 Fire Safety and TC 89 Fire Hazard Testing)
- European system of Classification
- Test Methods

Test laboratories perform the fire tests according to the standards.

Buildings

The new Construction Product Regulation (CPR), compulsory to all Member States requires revision from all EN product standards to obtain a CE-Mark with focus on dangerous substances (contents, emissions).
The EU reaction to fire classification and tests cover:

- Small ignition sources: flammability to EN ISO 11925-2 and
- Larger ignition sources: time to ignition, heat release, lateral flame spread to EN 13823
- Classification and tests are compulsory for all EU Member States, yet fire safety levels still remain under national control.

In **Brazil**, as no general fire safety regulations exist so far and following recent catastrophic fires, a proposal for a Bill (4923/2013) has been made to:

- exclude the use of highly flammable materials
- use products which minimize flame spread and heat release with the aim of reducing smoke and toxic gas formation

However, all 26 States plus the Federal District of Brasilia are free to make their own regulations.

In **China**, fire safety building codes, classifications and testing are all defined in terms of standards:

- GB 50016-2006: Code of design on building fire protection and prevention. And in the recent code amendment for thermal insulation of facades, the full-scale wall fire test GB/T 29416-2012 is considered
- Classification for burning behaviour of building materials and products, as well as reaction to fire tests used are in line with Europe (EN 13501-1:2007; EN 13823; EN ISO 11925-2).

Ongoing developments in China demonstrate a move towards more stringent FS specifications.

Transport

Buses

Following multiple tragic bus accidents around the globe, there are public demands for much higher fire safety standards to be introduced, which are now under discussion.
Current fire safety regulations and tests are giving too low fire protection:

- MVSS 302 + vertical curtain + drip tests.

Railways

- After 14 years of development, 'Fire Protection on Rail Vehicles' was published as a standard (March 2013) and is now in force (7 parts of EN 45545) and will be referred to in railway directives.
- Requirements for fire behaviour of materials and components are the basis for classification and testing (EN 45545-2)
  Revision of this standard has already started with the topics toxicity measurement:
  - more stringent fire testing for seats for a higher burner performance (28 instead of 7kW)
  - lower heat fluxes in the cone calorimeter (35kW/m2) (ISO 5660-1)
  - smoke/toxicity single chamber (ISO 5659-2)
  - the external open flame test has not been introduced by IEC, but in the EU and in Mexico.

This will again allow the use of thermoplastics and elastomers on a larger scale.
Most EU railways fire tests are also internationally used for ships in the IMO Fire Test Procedures (FTP) Code. Test requirements and classification are different.

E&E

Specific fire safety requirements and flammability tests are contained in international standards (IEC, CENELEC for the EU), and the corresponding national standards.
The main flammability tests are the Bunsen burner based UL94 test and the glow wire tests (IEC/EN 60695-2, Parts 10 - 13), which reflect the primary low energy ignition sources inside E&E devices and simulating any malfunction of small electrical parts.
Some revisions have been made in 2013 but without major changes and attempts to introduce standards for external ignition sources were unsuccessful.

Cables

In September 2014, CENELEC TC 20 published a product standard for cables (which are now to be included in the European Construction Products Regulation (CPR)); EN 50575 for power/communication/general applications in construction works.

The aim of the CPR is to harmonise methods of (fire) testing, conformity assessment and declaration of product performance values and to standardize the manufacturin g of products, guaranteeing their unlimited use with the EU.
The standard will require and enable all cable manufacturers who intend to sell cables for use in permanent installations within the EU to obtain CE-marking for their products.
(http://www.sp.se/sv/units/fire/SP_The way_CE-mark for Cables (2).pdf)
Flame retardants are necessary for meeting ignitability/flammability requirements in E&E equipment and by not using them it would dramatically increase the number of fires caused by malfunction of electrical parts and external ignition sources.

Furniture

Compulsory fire safety requirements for upholstered furniture, bedding and seats are required for specific applications in public buildings and transportation (trains, ships, aircraft)
In most parts of Europe, there are no strong fire safety regulations for upholstered furniture for the domestic environment, in contrast to the UK and Ireland.
Several countries in Europe use EN standards which are the basis for their own National regulations and standards e.g. EN 1021 and 597 (ignitability of furniture by cigarette or match).
Statutory regulations apply to domestic upholstered furniture sold in the UK and Ireland ('Furniture and Furnishings (Fire) (Safety) Regulations' 1988 (No. 1324 Regulation 6)) where all upholstered furniture (textiles, foams and fabrics) must meet BS 5852 and EN 1021-1 and 1021-2.

- The UK **current** fire tests for upholstered furniture consist of a simulated match test and a smouldering cigarette test (BS5852 Part 1&2) as small ignition sources and larger gas flames and 4 wooden crib tests of increasing intensity to represent higher energy ignition sources.

Any proposed changes to this furniture fire-testing standard could lead to reduced consumer fire safety in the home.
For now, the Department of Business, Innovation and Skills (BIS) has announced that it will NOT be seeking to implement the proposed amendments as initially scheduled to be implemented from April 2015.
In California, there have been recent changes made to the State's requirements (TB117) with removal of the open flame test, leaving only the remaining cigarette test that meets requirements without the use of flame retardants.

- The UK regulations, are also now under review by the Department of Business, Innovation and Skills (BIS). The focus is on making sure that the current regulations are not weakened hence resulting in compromised UK consumer safety.

Reviewing the breadth and depth of international fire safety standards in the marketplace, most of which are performance related but do not actually prescribe the use of any one or more of the fire safety toolbox solutions, gives an indication of the complexities of fire protection management today.
Where fuel loads and potentially flammable materials are constantly on the increase in the public domain, most manufacturers' first line choice has been the routine use of flame retardants (that have long since been limiting and suppressing fires) in meeting the requirements of these fire safety standards around the globe. With the recent elimination of open flame tests it is more likely we will see reduced fire safety in the living environment, which is essential for the saving of lives and property and in preventing catastrophic fire damage.