pinfa
Phosphorus, Inorganic & Nitrogen Flame Retardants Association

Your newsletter for non-halogen fire safety solutions
No. 90 April 2018

Many PIN flame retardants (FRs) have been recognised as alternatives or substitutes for problematic legacy FRs, enabling to maintain fire safety when these are phased out either by regulatory restrictions, by industry sustainability policies or by market demand. There is today increasing engagement from regulators and stakeholders to require that substitution of problematic chemicals moves to safer and environmentally preferable alternatives, not replacement by products which will in turn prove to also be problematic. Relevant initiatives indicated in this Newsletter include actions by regulators (Netherlands Government initiative "Safe Chemicals Innovation Agenda"), by stakeholders (TCO Generation 8 draft criteria moving to substitute brominated FRs by GreenScreen verified PIN FRs), by industry (textile industry Zero Discharge of Hazardous Chemicals, again based on GreenScreen) and research (EU-LIFE FLAREX substituting halogenated FRs in textiles). See also for example ECHA proposals on safer chemicals substitution in pinfa Newsletter n°72, Denmark report on alternative FRs (n°66), EU non-toxic environment strategy (n°86), ChemSec Safer Alternatives chemical digital forum (n°87) and the EU Substitution Support Portal www.subsport.eu

ANTEC® ORLANDO
The Plastics Technology Conference

ANTEC non-halogenated FR special interest group

At the ANTEC/NPE conference and trade show (US Society of Plastics Engineers and National Plastics Exposition), Orlando, Florida, pinfa-na will have a permanent booth n° S10052, and is co-sponsoring a Non Hal Special Interest Group session at **ANTEC, Florida, 10th May 2018**.

ANTEC, 7-11 May 2018, Orlando https://www.eiseverywhere.com/ehome/252707
pinfa and pinfa North America events: http://www.pinfa.eu/index.php/en/media-events/events and http://www.pinfa-na.org/

cen

CENELEC

CEN workshop on Sustainable Chemicals

CEN/CENELEC, the European standardisation bodies, are organising a stakeholder workshop on standardisation needs for sustainable chemicals and for chemicals in the circular economy / secondary raw materials. This will input to a CEN report requested by the European Commission to identify standards gaps and propose work to close these gaps. **Brussels, 24th May 2018**.

CEN/CENELEC sustainable chemicals workshop
http://www.cvent.com/d/pgq7vl?lang=en&sms=7&cn=M3zP_uwRDkeGSTGKcFDrJg

NFSD Nordic Fire & Safety Days

Promoting fire safety research: NFSD Trondheim

pinfa has initiated a stakeholder workshop, to take place at the **Nordic Fire Safety Days, Trondheim, Norway, 7-8 June**. This will promote inclusion of fire safety in HorizonEurope (the 100 billion € EU funding programme Pinfa will present jointly with FireSafeEurope. 7th June 16h45 – 18h15

Nordic Fire Safety Days (NFSD), Trondheim, Norway, 7-8 June 2018
http://www.conferencemanager.dk/NFSD2018/nordic-fire-safety-days-2018.html

pinfa, Avenue E. Van Nieuwenhuyse 4, 1160 Brussels, Belgium
pinfa@cefic.be Phone +32 2 676 74 36 www.pinfa.org
@pinfa_eu

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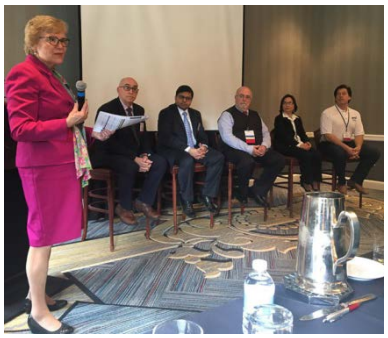
cefic sector group

pinfa North America workshop in Dearborn, MI: new challenges for automotive fire safety

Within the heart of the North American automotive market pinfa North America in conjunction with SAMPE held a conference on April 4-5th 2018 entitled “Meeting Fire Safety Requirements for Ground Transportation”.

Fifty-five stakeholders attended this 2-day event in Dearborn Michigan adjacent to the FORD Motor Company central research facilities. Participants included automotive OEMs, Tier 1 suppliers, Ecology Center Michigan, polymer companies and FR suppliers. As part of the event, participants were also able to tour FORD’s Rouge Plant to view FORD F150 production and assembly.



The technical program consisted of sixteen presentations plus two panel discussions. Keynote speeches included "Evolution of Automotive Standards for Flammability, Odor and Emissions” by Jeffrey Helms of Celanese. Odour in the car interior is a big topic especially in Asia, where customers seem to be more sensitive to chemical emissions (“new car smell”) than Westerners. China has just issued a very stringent new standard on emissions. The Chinese leading role in growing the share of “New Energy Vehicles” was elaborated by Cindy Liu from Clariant China. Shashank Modi of Center for Automotive Research presented “Impact of Automated, Connected, Electrified & Shared Mobility (ACES)” pointing to new safety challenges for autonomous cars with occupants who might even be sleeping. Susan Mack of Aptiv (formerly Delphi) presented design trends in automotive interiors/entertainment systems. Roger Avakian of Polyone discussed “Supply of FR Advanced Materials to the Transportation Industry: A Technical Perspective on Past, Present and Future Requirements”. Hoa Pham of Freudenberg Performance Materials presented work in flame retardant non-wovens for acoustic and thermal applications. Jason Huczek of SWRI presented a paper concerning U.S. National Highway Traffic Safety Administration’s work related to bus fire safety and interior automotive flammability requirements. Here he reported on a project to review FMVSS 302, however, not with the goal to increase flammability requirements (it was difficult for him to find reference materials that would actually fail the test), but rather making the test “more reproducible and robust”. Robert Crescenzo (Vice-President) of Lancer Insurance discussed motor coach fire safety. His company, the largest insurer of motor coaches in U.S., has seen 300 bus fire claims since 2007. During his talk, he described the efforts underway to prevent bus fires and protect passengers from injury related to fire causes. Alex Morgan (UDRI) and Ritch Koeth of ASchulman gave informative presentations with regard to formulating and testing of materials for automotive applications.

The conference was well received and pinfa North America is looking forward to hosting its next annual conference **April 30-May 1, 2019** concerning electrical and electronic device fire safety in San Jose, California.

pinfa North America *http://www.pinfa-na.org/*

Phosphorus: compliance checks, Critical Raw Material

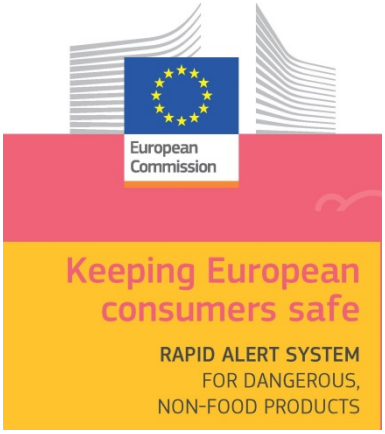
ECHA (the European Chemicals Agency) has updated the list of chemicals "potentially subject" to REACH compliance checks (27/11/2017). This list includes "Red phosphorus" (EC# 918-594-3) which is used in a range of PIN flame retardant applications, and phosphine, a toxic gas chemically related to ammonia NH_3 (PH_3 – EC# 231-768-7 - confusingly listed as "*phosphorus*" by ECHA). Inclusion on this list invites the Lead Registrant to update the REACH dossier, and may possibly if the compliance check is carried out, result in a requirement for further testing to complete available substance data. Compliance checks are meant to examine in general whether submitted dossiers from industry are satisfactory, so that inclusion on the list does is not related to possible future restriction of the chemical – this is a totally separate process (the CoRAP, Community Rolling Action Plan - see pinfa Newsletter n°90 for list of flame retardants currently on the CoRAP list). Also, white phosphorus (P_4, also called "yellow" phosphorus) was added to the EU list of Critical Raw Materials (CRM) in 2017, joining phosphate rock which was included in 2014. The EU CRM list identifies 27 raw materials which are essential for different industries in Europe, for which Europe is largely dependent on imports. P_4 is essential for a range of speciality chemicals including flame retardants, lubricants, agro-chemicals and pharmaceuticals and electronics, whereas phosphate rock is essential mainly for fertilisers and livestock feed. Inclusion of P_4 on the CRM list will facilitate EU support for projects aiming to develop production in Europe, for example from secondary raw materials such as sewage sludge or animal by-product incineration ashes (see e.g. ICL RECOPHOS process).

ECHA "Substances potentially subject to compliance checks" 27/11/2018 https://echa.europa.eu/documents/10162/13628/substances_compliance_checks_en.pdf EU Critical Raw Materials List 2017 http://ec.europa.eu/transparency/regdoc/rep/1/2017/EN/COM-2017-490-F1-EN-MAIN-PART-1.PDF

TCO Generation 8 open for comment

TCO, the health, environment and worker protection label for office and home electronics, has published draft TCO Certified Generation 8 criteria for comment **until 31st May 2018**. The draft is presented as ambitiously driving sustainability. Most criteria are the same for all product categories. Concerning chemicals, the draft criteria documents particularly highlight as problematic heavy metals and brominated flame retardants, stating that – for TCO: "Halogens are problematic from both a health and environmental perspective throughout the product life cycle and should be phased out". The draft criteria state that plastic parts of significant size (>5g to >25g depending on the product category) must not intentionally contain halogens in flame retardants, plasticisers or polymers, with exceptions for printed wiring boards, electronics components and cable insulation. Furthermore, to avoid undesirable substitution, in the same plastic parts, non-halogenated flame retardants (PIN FRs) must have been verified GreenScreen benchmark 2, 3 or 4. TCO will publish a public listing of validated PIN FRs, which will be updated as new GreenScreen verifications are obtained or as new data leads to modification of GreenScreen benchmarks.

TCO public consultation on Generation 8 criteria, open to 31st May 2018 http://tcocertified.com/new-generation-tco-certified/



EU dangerous product alert system (RAPEX)

The EU has published its 2017 report on the 'Rapid Alert System' for dangerous products, showing that the system is increasingly used by Member States. 2201 alerts were issued in 2017, resulting in nearly 4000 follow-up actions undertaken by Member States. 22% of alerts notified concerned chemical risks, the second highest category (after injuries 28%) and higher than choking, electrical shock or fire (6%). The most notified product categories (for all risks) were toys, motor vehicles and clothing. An example of a chemical risk alert is given as an illustration: a plastic toy doll containing up to 16% of a phthalate banned in toys and children's products under REACH.

"Protecting European consumers: toys and cars top the list of dangerous products detected", European Commission press release IP/18/172 (RAPEX) 12th March 2018 http://ec.europa.eu/consumers/consumers_safety/safety_products/rapex/alerts/repository/content/pages/rapex/index_en.htm

EU strategy for plastics in the circular economy

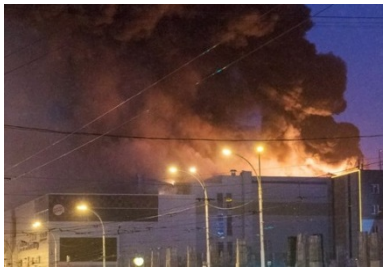
The European Commission has published a Communication (strategy) and action plan to develop the circular economy for plastics. Proposed targets include, by 2030, recycling of at least half of waste plastics, all plastic packaging to be reusable or recyclable and multiplication by four of EU plastics recycling capacities. Objectives include reducing CO_2 emissions and dependency on oil for plastics production, reducing plastic waste input to oceans and microplastics and responding to international developments such as China's recent ban on imports of certain plastic wastes and actions on plastic wastes proposed by the United Nations. The list of actions includes eco-design, improving traceability of chemicals and addressing legacy chemicals in recycled streams, development of standards on plastics recycling and contaminant characterisation, improving waste collection and financial support for investment and innovation.

Communication from the Commission: "A European strategy for plastics in a circular economy" SWD(2018)28 and SWD(2018)16 January 2018 http://ec.europa.eu/environment/circular-economy/pdf/plastics-strategy-swd.pdf *and* https://publications.europa.eu/en/publication-detail/-/publication/413c5c03-fac7-11e7-b8f5-01aa75ed71a1/ *and Annex I "List of future EU measures to implement the strategy"* http://ec.europa.eu/environment/circular-economy/pdf/plastics-strategy-annex.pdf

Future Sky – risk of fire, smoke and fumes in aircraft

The EU-funded (Horizon 2020) project Future Sky Safety brings together 33 partners and €30 million budget to develop new tools and approaches for aeronautics safety. The project notes that 50% of aircraft accident casualties occur in incidents where fire is involved. One strand of the project (P7) addresses the risks of fire, smoke and fumes, aiming to understand fire behaviour of structure composites (epoxy resins, CFRPs – carbon fibre reinforced plastics), novel fire resistant / low smoke toxicity materials, and impacts of new materials on cabin air quality. The project will look at heat production, toxic fumes and smoke from structural and cabin interior materials, aiming to identify and test new materials, and to define appropriate fire testing.

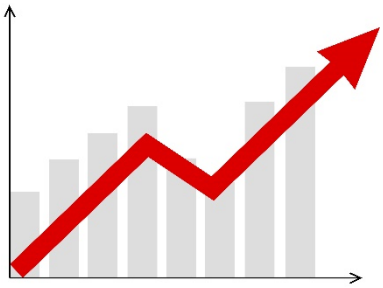
"Mitigating he risk of fire, smoke and fumes" www.futuresky-safety.eu/project-7/



Russia shopping centre fire security questions

64 people, including many children, died in a fire at the Winter Cherry shopping mall, Kemerovo, Siberia, Sunday 25th March. The shopping mall was created in a former bakery factory in 2013. Media reports suggest that the fire started in the children's trampoline room, with some versions blaming an electrical fault and others a child playing with a cigarette lighter. The fire spread rapidly, with large amounts of black smoke, trapping people in particular in a cinema on the same floor as the trampoline room. Media reports suggest a number of security violations including a non-functional fire extinguisher, the switching off of the alarm and PA system when the fire started and blocked fire exits. The fire demonstrates, yet again, the danger posed by the fire load of potentially flammable materials inside buildings and the need for sufficient and functioning fire safety measures.

"Russia Kemerovo fire: Shopping centre exits 'were blocked', BBC 26th March 2018
http://www.bbc.com/news/world-europe-43543105



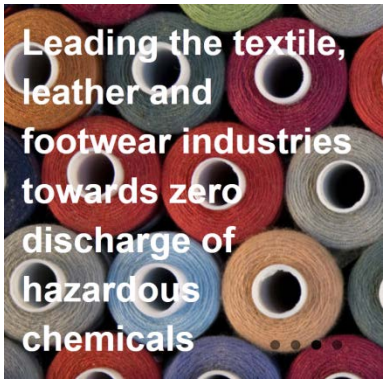
Continuing growth for PIN flame retardants

A global market study (Mordor) anticipates growth of 6.2% per year for PIN flame retardants for the period 2018-2023, from a global value of 1.4 billion USD in 2016. The study considers that growth will be driven by infrastructure development in emerging economies and by increasing consumer demand for electronics worldwide. Flame retardants are needed for fire safety, and health and environment concerns are expected by the study to lead to regulations further restricting the use of halogenated flame retardants. A second report (Ceresana) studies FR demand growth to 2024, concluding that transport will be the highest growth sector, but with construction remaining the biggest use sector.

"Global Non-Halogenated Flame Retardant Chemicals Market - Growth, Trends and Forecasts (2018 - 2023)", MordorIntelligence, December 2017 and March 2018
https://chemicals.report/chemical-reports/global-non-halogenated-flame-retardant-chemicals-market/ and https://www.mordorintelligence.com/industry-reports/non-halogenated-flame-retardants-market "Market study: Flame Retardants (5th edition)", Ceresana, January 2018
http://www.ceresana.com/en/market-studies/chemicals/flame-retardants/

ECHA compiling list of all flame retardant chemicals

ECHA (the European Chemicals Agency) has written to a number of REACH Lead registrants requesting confirmation that declared use of a registered chemical as "flame retardant" is non-confidential. ECHA states that it has received an application for access to documents under Regulation (EC) No1049/2001 on public access to documents ("ATD Regulation") regarding substances possibly used as flame retardants and it would seem that the Agency is therefore building a list of all chemicals for which use as a flame retardant is declared, based on the REACH dossier. This will provide a valuable – and by definition publicly available (on request?) – list of all flame retardant chemicals when completed. However, it should be noted that inclusion of the use "flame retardant" in REACH dossiers does not always correspond to reality: REACH Registrants may declare all possible uses, to ensure that every possible customer is covered, so this list may result in identifying as FRs chemicals which are not in fact used as such.



Textile ZDHC validates GreenScreen for conformance

The textile and synthetic leather processing ZDHC (Zero Discharge of Hazardous Chemicals) has recognised GreenScreen Certified™ as an indicator of Level 1 MRSL Conformance (MRSL = Manufacturing Restricted Substances List). The GreenScreen Certified™ Standard for Textile Chemicals requires all intentionally added substances and all impurities (>0.01%) to meet ZDHC Group B MRSL (this excludes a number[1] of halogenated FRs, including TCEP, Deca and other BDEs, TBBPA TDCP, BBMP, BIS and TRIS, HBCDD and SCCPs, and TEPA Tris(1-aziridinyl)phosphine oxide, see pinfa Newsletter n°89). Certification Level (Gold, Silver, Bronze) depends on whether chemicals achieve GreenScreen Benchmarks 3+4, 2+3+4 or not List Translator LT-1.

"ZDHC recognizes GreenScreen Certified™ Indicator of Level 1 MRSL Conformance", 21 February 2018 https://www.greenscreenchemicals.org/resources/entry/zdhc-greenscreen-certified GreenScreen Certified Textile Standard https://www.greenscreenchemicals.org/certified/certification-standard

Fatal fires are a social issue

A study of fatal fires in Norway by RISE shows that fire risk is not equally shared and that some social groups are much more vulnerable. 567 people died in 513 different fires in Norway over the ten years 2005-2014. Police reports were available and were analysed for 400 of these fires and medical records for nearly 250 of the victims. Of the elderly victims (>67 years), risk factors such as impaired mobility or reduced cognitive abilities / dementia were often observed. For other victims, nearly 90% showed one or more risk factor such as drug abuse, mental illness, influence or alcohol or smoking at the time of the fire. RISE concludes that fire prevention efforts should involve medical and home services to address these identified social risks.

"Fatal fires are a social problem" BrandPosten #57 2018 https://www.sp.se/en/units/risesafe/safety/fire/brandposten/Sidor/default.aspx and full report in English "Analysis of fatal fires in Norway in the 2005-2014 period", C. Sesseng et al., 2017 A17 20176:2 http://risefr.com/media/publikasjoner/upload/2017/a17-20176-2-analysis-of-fatal-fires-in-norway-in-the-2005-2014-period.pdf

See also the importance of alcohol consumption as a social risk factor in J. Giebultowicz et al., Poland, in pinfa Newsletter n°85

"Naturally non-flammable" cellulose fibres in PBT

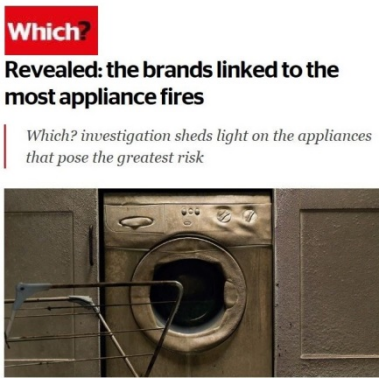
An article in Kunstoffe International presents successful development of high performance, fire resistant electrical components using bio-sourced cellulose fibres and PIN flame retardants. Purified natural cellulose was regenerated (processed into a filament yarn) to improve mechanical performance, and used in PBT polymer (polybutylene terephthalate) with PIN flame retardants AlPi (aluminium diethyl phosphinate) and MPP (melamine polyphosphate) to achieve UL94-V0 (1.6mm) and good mechanical performance (tensile strength, elongation at break, notch impact strength, tensile modulus). Industrial parts such as cable guides for lights have been produced.

Kunstoffe International, H-P. Heim, M. Feldmann, N. Gemmeke, 1-2 2018 "Naturally non-flammable", in English and German, project with Fraunhofer IEP (Institute for Applied Polymer Research), BMEL, FNR and seven companies www.kunstoffe-international.com

Call for protocol on circular economy chemicals safety

A coalition of EU environmental NGOs has called for a legally binding SAICM protocol on transparency of hazardous chemicals in recycled materials and the circular economy. The NGOs also call for bans on category 1A or 1B carcinogens, mutagens, reproductive toxicant, neurotoxic, persistent and bioaccumulative chemicals. SAICM (Strategic Approach to International Chemicals Management) is a UN coordinated policy framework to promote chemical safety worldwide. SAICM was adopted in 2006 and runs to 2020, and a preparation of a policy beyond that date was launched in February 2017.

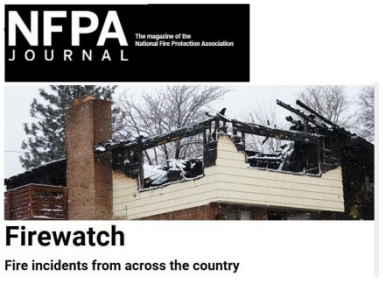
"Legally binding protocol on transparency of hazardous chemicals in the SAICM post 2020 framework" SSNC, Arnika, ECOS, HEAL, EEB, 22nd January 2018 http://env-health.org/IMG/pdf/20180131_eu_petition_letter_saicm_dg_environment.pdf



WHICH magazine call for safer home appliances

The UK's leading consumer magazine has launched an "End Dangerous Products" campaign, calling for reforms of the UK's product safety regulations and for manufacturers to "Stop making cold appliances with non-flame-retardant plastic backs". The London Fire Brigade has already been campaigning for some time to make fire-resistant backings obligatory. The WHICH campaign, which has achieved considerable media coverage, reminds that the tragic Grenfell Tower fire was started by a fridge-freezer. By requesting official data, WHICH shows that over 3 000 UK household fires per year are caused by faulty electrical appliances and leads, of which 1/3 by washing machines and tumble driers. WHICH names several brands linked to a significant proportion of fires, and advises consumers to "stop buying fridges and freezers with flammable plastic backs". BEKO is quoted as stating "Since 2007, our entire refrigeration range has been fitted with flame retardant backs. We have not seen a single fire in a Beko cooling product manufactured following this, where the refrigerator has been proved to be the cause".

WHICH consumer magazine UK, 15th February 2018 https://www.which.co.uk/news/2018/02/revealed-the-brands-linked-to-the-most-appliance-fires/ and https://www.which.co.uk/reviews/fridge-freezers/article/fridge-freezer-safety Fire test video https://secure.brightcove.com/services/mobile/streaming/index/master.m3u8?videoId=5670817456001



Typical everyday tragedies

Big catastrophic fires make the headlines, but the daily small fires which kill and ruin lives are mostly forgotten. The US National Fire Protection Association magazine reminds us of these everyday tragedies and provides information on the causes and development of fires where available. The Jan-Feb 2018 edition includes a home fire which killed two in California, started by a cigarette on an upholstered couch, one killed by a kitchen fire in (starting in an oven and spreading to plywood furnishings) Pennsylvania and another in a cooking fire in Maine, two dead in a Michigan home when a space heater ignited drying clothes and another in Louisiana when a space heater ignited a carpet and books, four dead in Louisiana and one in Illinois in home fires started by electrical wiring faults.

"Firewatch" NFPA Journal January-February 2018 https://www.nfpa.org/News-and-Research/Publications/NFPA-Journal/2018/January-February-2018/News-and-Analysis/Firewatch

EU LIFE-FLAREX: substituting halogenated textile FRs

The EU-funded LIFE-FLAREX project aims to replace halogenated flame retardants in home textiles, applying the substitution principle to REACH SVHC (Substances of Very High Concern) and PBT (Persistent, Bioaccumulative, Toxic) chemicals, with the objective of reducing halogenated FR use in this sector by 20% by 2023. An initial report notes that halogenated FRs identifies already as promising alternatives the following PIN FRs: ammonium polyphosphate (APP), poly[phosphonate-co-carbonate], magnesium hydroxide, aluminium hydroxide and aluminium diethylphosphinate (Alpi). The report indicates that there may also be other good alternatives, but that there are data gaps and lack of data for their assessment. A first workshop with 32 stakeholders confirmed the constructive reception of the project by stakeholders and relevant industries and the selection of study fabrics (polyester, cotton and blends of these). Speakers, including from FLARETEX, ECHA and EURATEC (European Apparel and Textile Industries) underlined the need for flame retardants in home textile products to ensure fire safety and the possibilities for innovation and progress offered in substituting harmful chemicals. Discussion noted the importance of coherent and EU harmonized fire safety regulations, and the potential of public procurement, if concerted across Europe, to develop a market for alternative FRs and competitiveness of SMEs providing innovative solutions. However, for many applications where flame retardants with an improved environmental and health profile are available on the market, legacy commodity FRs often continue to be used because of cost advantage. Flarex next steps will include testing, demonstrating and benchmarking (comparison to conventional solutions) of PIN FRs, including technical performance, environmental impact, exposure and toxicological assessments.

www.life-flarex.eu FLAREX workshop 16th January 2018 summary https://www.life-flarex.eu/2018/01/life-flarex-reviews-the-selection-of-products-to-be-used-during-the-project-in-the-second-consortium-meeting-at-centexbel/ and press release https://www.life-flarex.eu/2018/03/life-flarex-stakeholders-workshop-attracts-companies-and-organizations-from-8-european-countries-to-discuss-on-alternative-flame-retardants/ Report (Deliverable A1) on "fabrics and flame retardant selection" 11 January 2018 https://www.life-flarex.eu/wp-content/uploads/2018/01/Deliverable-A1.1-Selection-of-textiles-and-flame-retardants-Public.pdf


LE MONITEUR.fr

DROIT DE LA CONSTRUCTION

Point de vue – Loi Confiance : « Pas de droit à l'erreur pour la sécurité incendie »

France maintains construction fire safety obligations

The French Parliament is currently processing proposed legislation to enable the Government to simplify by decree certain construction regulation constraints, in order to authorise alternative construction methods or materials intended to achieve the same objectives as the regulatory requirements ("Confidence Law"). The French national federation of firefighters reacted to the proposal underlining that fire kills 600 people each year in France, but that progressively tighter fire safety requirements have enabled this number to be halved over the last thirty years. The firefighters protested that the simplification would mean only knowing whether or not fire safety was ensured in the event of a fire and pressed that regulation should only be changed after detailed and methodological scrutiny. In response, the Government has committed to maintain fire safety requirements.

"Tribune: Confidence Law: no right to make errors for fire safety", Eric Faure, Fédération Nationale des Sapeurs-Pompiers in 'Le Moniteur' n°254 January 2018 (in French) https://www.lemoniteur.fr/article/point-de-vue-loi-confiance-pas-de-droit-a-l-erreur-pour-la-securite-incendie-35281573

EU Human Bio-Monitoring programme to study FRs

HBM4EU, an EU Horizon2020 project, has published an initial screening study to identify priority chemicals relevant for human bio-monitoring (HBM). From 62 flame retardants initially considered (alongside 8 other groups of chemicals, see pinfa Newsletter n°84), 20 are identified to receive further attention, based on concerns about potential toxicity and existing HBM data. The majority of these are halogenated FRs, but melamine polyphosphate and seven non-halogenated phosphate esters (TPHP, TMPP, TNBP, TBOEP, TEHP, EHDPP, ip-TPP*) are also listed. Additionally, six further FRs are noted to have both no toxicological data and no HBM data, including one PIN substance: diethylphosphinic acid (this is however not used itself as a flame retardant, but rather its salts, particularly its aluminium salt). The project now intends to carry out further research into the 20 identified FRs (in particular collation and assessment of HBM data and evaluation of appropriate HBM methods for these substances), and also to look for further screening information on the six addition FRs considered to be lacking data.

HBM4EU Coordinating and Advancing Human BioMonitoring in Europe to Provide Evidence for Chemical Policy Making https://www.hbm4eu.eu/ and Scoping Document on Flame Retardants, 20/11/2017, 26 pages https://www.hbm4eu.eu/the-substances/flame-retardants/

** Acronyms: TPHP Triphenyl phosphate, TMPP Tricresyl phosphate, TNBP Tri-n-butyl phosphate, TBOEP Tri(2-butoxyethyl) phosphate, TEHP Tris(2-ethylhexyl), EHDPP 2-ethylhexyl diphenyl phosphate, ip-TPP Isopropyl triphenyl phosphate*

Towards a Safe Chemicals Innovation Agenda

pinfa participated at a workshop led by the Netherlands Government on 28th March discussed how to ensure that chemicals substitution leads to safe-by-design chemicals, rather than incremental replacement of banned substances by similar or otherwise problematic chemicals. The workshop will contribute to a Netherlands national "Safe Chemicals Innovation Agenda". Flame retardants are one of nine applications proposed as research themes. Discussion underlined the need for better links between supply, demand, application and innovation; the importance of clear and accepted assessment schemes to define what are positive alternatives; and the potential for a structured EU research project to investigate both health and environmental properties and industrial applicability of today's alternative PIN flame retardants (as was done by ENFIRO in 2010-2013 (see pinfa Newsletter n°36).

"Safe Chemicals Innovation Agenda", Netherlands Minister of Infrastructure and Water Management (in English)
https://www.rijksoverheid.nl/documenten/toespraken/2018/03/28/speech-by-state-secretary-for-infrastructure-and-water-management-stientje-van-veldhoven-on-the-safe-chemicals-innovation-agenda Workshop details and presentations:
https://www.chemischestoffengoedgeregeld.nl/content/workshop-towards-safe-chemicals-innovation-agenda-substitution-safe-design

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For abbreviations see: www.pinfa.org