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## EVENTS UPDATE

In the current situation, many events are postponed or converted to online. Here is an update on status of some pending events:

### 2020

#### **pinfa e-mobility webinar**

- How flame retardants combine fire safety and sustainability in automotive plastics  
Wed. 28<sup>th</sup> October, 9h00 & 16h00 CET (2 x 90 minute sessions, same speakers) registration [here](#)

#### **pinfa General Assembly- 3<sup>rd</sup> December – changed from personal to web meeting**

- pinfa Members and invited guests only

#### **pinfa-na Non-Halogen Flame Retardant Formulator's Workshop**

- online, 9-10 March 2021 (dates to be confirmed) <https://www.pinfa-na.org/>

#### **Other upcoming webinars:**

- European Fire Safety Alliance MEP webinar, 29<sup>th</sup> Sept. 10-11h30 CEST - [register](#)
- Fire Safe Europe MEP fire in the Green Deal webinar, 30<sup>th</sup> Sept. 12-13h CEST- [register](#)
- NEN, SFPE, BBN façade fire safety webinar, 6<sup>th</sup> October 15h-17h30 - [register](#)
- Webinar on facades fire performance testing, Lars Boström (RiSe), 13<sup>th</sup> Octo. 11-11h30 CEST - [register](#)
- European Fire Safety Community (EFSC) digital summit on buildings - 29<sup>th</sup> Oct. 14-17h CEST - [register](#)

#### **AMI Fire Retardants in Plastics North America:**

- 1-2 October 2020, October – cancelled - next conference: 4-5 May 2021, Houston, Texas [link](#)

#### **AMI Fire Resistance in Plastics Europe**

- 30 November – 2 December 2020 – for the moment, [confirmed](#) in Düsseldorf

#### **Würzburg, Germany, Trends in Fire Safety and Innovative Flame Retardants for Plastics**

- [postponed](#) to 18<sup>th</sup> – 19<sup>th</sup> May 2021

#### **Wood and Fire Safety - 2-3 November 2020 - now [webinar](#)**

### 2021

- **FIVE (Fires in Vehicles)** – [now online](#) 15<sup>th</sup> PM & 16<sup>th</sup> AM December 2020 (was March 2021)
- **Brominated Flame Retardants (BFR)** – April 2021 cancelled to 2022 – dates [not yet](#) announced
- **Nordic Fire Safety Days** – currently maintained 15-16 June 2021, Lund
- **FRPM** – currently [maintained](#) 27-30 June 2021 Budapest.

**Call for abstracts for FRPM** – deadline 15<sup>th</sup> December 2020 <https://www.frpm21.com/registration>

## CONSULTATIONS



### Sustainable Products Initiative

An EU public consultation is **open to 2<sup>nd</sup> November 2020** on “Sustainable Products” policy, in particular EcoDesign. The ‘Roadmap’ open to public comment suggests that the “scope of the Ecodesign Directive needs to be widened beyond energy related products and made applicable to the broadest possible range of products”. Objectives include product durability, recycling, materials sourcing, coherence with the EU Ecolabel and Green Public Procurement and information along the value chain. The initiative is part of the Green Deal and the Circular Economy Action Plan. The website particularly states that the initiative will address harmful chemicals. Priority product families are electronics and ICT, furniture, textiles, steel, cement and chemicals.

*EU public consultation on Sustainable Products Initiative ‘Inception Impact Assessment Roadmap) open to 2<sup>nd</sup> November 2020*

<https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12567-Sustainable-Products-Initiative>



### Construction Products Regulation

The EU public consultation on the review of the CPR is **open to 22<sup>nd</sup> December 2020**. This follows the Evaluation of the Regulation, published in 2019 which concluded that the regulation does facilitate an EU market but identifies problems with development of harmonised EU standards for implementation. Links to Green Deal and Circular Economy Action Plan objectives are emphasised in the consultation. In the preparatory ‘Roadmap’ consultation, pinfa expressed support for environmental objectives and underlined the importance of improving fire safety. The current public consultation offers two questionnaires: a shorter public questionnaire, and a more detailed technical questionnaire.

*Evaluation of Regulation (EU) No 305/2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC, SWD(2019)1770,*

<https://ec.europa.eu/docsroom/documents/37827>

*Construction Products Regulation (CPR) public consultation, to 22<sup>nd</sup> December 2020* <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12458-Review-of-the-Construction-Products-Regulation/public-consultation>

*See pinfa input to the consultation Roadmap prior consultation (August 2020) here: <https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12458-Review-of-the-Construction-Products-Regulation/F543858>*



## Product environmental claims

An EU public consultation is **open to 3<sup>rd</sup> December 2020** on “**Substantiating claims of environmental performance**”. This targets PEFs (Product Environmental Footprints) but also discusses ecolabels, environmental performance reporting, sustainability ratings, harmonisation of environmental information. The announced objective is to identify policy options for substantiating environmental claims using Environmental Footprint methods. The online questionnaire addresses, in detail, what types of environmental claims should be authorised and under what conditions, how environmental footprint results should be communicated, how claims should be verified (conformity assessment). This may in the future become relevant for PIN products which promote their preferable environmental profile.

*EU consultation on product environmental claims to 3<sup>rd</sup> December 2020*

<https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/12511-Environmental-claims-based-on-environmental-footprint-methods/public-consultation>

## POLICY



### Study says Swedish FR tax has little effect

**Company interviews suggest tax may not target the right flame retardants and has resulted in little substitution.** Thirteen suppliers, importers and retailers of white goods and/or electronics were interviewed. Consistency of answers indicated that the number of interviews was sufficient. Conclusions are that the tax has had only a small effect in FR substitution, because the Swedish market is too small to influence global product manufacturers (EU-level regulation is considered more effective, with REACH cited) and because the tax applies by product weight not flame retardant content. A third of the respondents did not know if substitution has been made. Several respondents indicate that they have no control of products they sell or a lack of documentation on flame retardant content which prevents possible tax reductions. Companies noted that the tax is complex and generates administrative costs, and expressed concerns that testing is not feasible so that declarations cannot be verified. The study authors also conclude that the tax might not accurately reflect the real risks related to different types of flame retardants, with companies regretting that even with environmentally-friendly flame retardants some tax still has to be collected and paid.

*“Taxation of Hazardous Chemicals as a Substitution Measure. An interview study on companies affected by the Swedish tax on chemicals in certain electronics”, I. Andersson, S. Larsson, Chalmers Uni. Technology, E2020:058 <https://odr.chalmers.se/handle/20.500.12380/300859> See also pinfa Newsletter n°106 and video here [http://www.beard.de/2019-04\\_pinfa10/2019-09-17\\_Swedish\\_Electronics\\_Tax.MOV](http://www.beard.de/2019-04_pinfa10/2019-09-17_Swedish_Electronics_Tax.MOV)*



## EU Commission answer on FR policy

Flame retardants will be targeted in EU policy developments for Sustainable Products and Green Public Purchasing, [says Thierry Breton](#) (European Commissioner for Internal Market). The statement is in response to a question from three Portuguese European Parliament members (PPE) which cites as source the Alliance for Flame Retardant Free Furniture (an organisation with ten members, of whom two furniture industry federations). The Commission answer refers to existing regulation (REACH, RoHS, POPs), citing as prohibited the PBDEs (brominated) and SCCPs (chlorinated). It confirms that furniture will be a priority product group under the future Sustainable Product Initiative (public consultation currently open, see above) and in the Circular Economy Action Plan and that policy will build on existing Green Public Procurement (GPP) criteria. pinfa notes that recently published GPP criteria for printers exclude all halogenated FRs (see pinfa Newsletter n°116).

*EU Parliamentary Question 20<sup>th</sup> May 2020 ref. E-003135/2020*  
[https://www.europarl.europa.eu/doceo/document/E-9-2020-003135\\_EN.html](https://www.europarl.europa.eu/doceo/document/E-9-2020-003135_EN.html) and *European Commission answer, Thierry Breton, 15<sup>th</sup> September 2020 ref. E-003135/2020*  
[https://www.europarl.europa.eu/doceo/document/E-9-2020-003135-ASW\\_EN.html](https://www.europarl.europa.eu/doceo/document/E-9-2020-003135-ASW_EN.html)

## COMMUNICATION



### Intumescent FR paint screened on Grand Designs

The UK Channel4 TV series has featured intumescent FR paint, shown as saving the character of a front-edge renovation. The Channel4 series, running since 1999, features outstanding house renovations, in this case a Victorian dairy building in London transformed by graphic designers into a top-market design house. Intumescent FR paint was the only way to keep visible the historic wooden joists, a key part of the building's character. The programme shows testing of plywood sheets at the UK Building Research Establishment. Four minutes after exposure to a gas flame, a 12 mm plywood panel is shown breached by fire with flames burning out both sides of a hole, whereas an intumescent FR painted panel resists more than twenty minutes flame.

*"Kevin McCloud - South East London: Victorian Dairy House" – see at 27 minutes: <https://www.youtube.com/watch?v=drA6OfAF04Q>*





## GreenScreen Certified fire fighting foam

Criteria for fire fighting foams have been updated to cover Class A and B foams, excluding halogens. Clean Production Action's (CPA) GreenScreen Certified Standard for fire fighting foams first addresses Class B foams in January this year, targeting PFAS (per- and polyfluoroalkyl substances) prevalent in aqueous film forming foams (AFFF). The updated criteria now cover Class A foams, used to fight house fires and forest fires. The criteria exclude presence of any chemical defined by CPA as of "high concern", including all organohalogens, applicable to any chemical ingredient or any impurity present > 0.01%w/w.

*"Updated ecolabel for firefighting foams expanded to include Class A firefighting products for wildfires, structural fires and other combustible materials", 16<sup>th</sup> September 2020*

<https://www.cleanproduction.org/resources/entry/newsletter-september-16-2020>



## pinfa member wins China GoldenBee

Clariant has been recognised for sustainability and recycling by China's GoldenBee CSR award for enterprises. [GoldenBee](#) is a corporate platform, developing Corporate Social Responsibility in China, supported by [China Sustainability Tribune](#) (previously WTO Tribune). Clariant obtained one star, the starting award, with the possibility of adding additional stars every three years. Clariant was recognised for its commitment to plastic recycling along the value chain and for the Clariant [EcoCircle](#) Circular Plastics Initiative which screens products for recyclability and provides a collaboration platform with downstream users and stakeholders. Clariant has now also been listed on the DJSI (Dow Jones Sustainability Index) for its seventh consecutive year.

*"Clariant wins 2020 China GoldenBee CSR Award", 10<sup>th</sup> August 2020*

<https://www.clariant.com/en/Corporate/News/2020/08/Clariant-wins-2020-China-GoldenBee-CSR-Award>

*"Clariant listed in 2019 Dow Jones Sustainability Index", 16<sup>th</sup> September 2019*

<https://www.clariant.com/corporate/news/2019/09/clariant-listed-in-2019-dow-jones-sustainability-index>

## RESEARCH AND INNOVATION



## Phosphorus FRs in sandwich panels

PIN flame retardants reduce heat and smoke release from PET-core / glass fibre / epoxy structural sandwich panels. Several phosphorus flame retardants were tested in the PET core of 15mm panels with glass fibre and DGEBA epoxy resin coverings. The resin was tested with or without phosphorus FR (DEPAL) and the PET was tested with three PFRs (PSMP, DEPZn, DOP) and one

halogenated FR (HFR). Lowest peak heat release rate with the best PFR (3% PSMP) and DEPAL resin was below half that with no flame retardant, and was lower than with HFR PET. Total smoke release was nearly 40% lower with the best PFR (2% PSMP) and DEPAL resin than with no flame retardants, whereas HFR resulted in nearly +20% more smoke production.

*"Fire behavior of flame retarded sandwich structures containing PET foam cores and epoxy face sheets", C. Bethke et al., Polymer Composites. 2020;1-14 <https://doi.org/10.1002/pc.25786>*

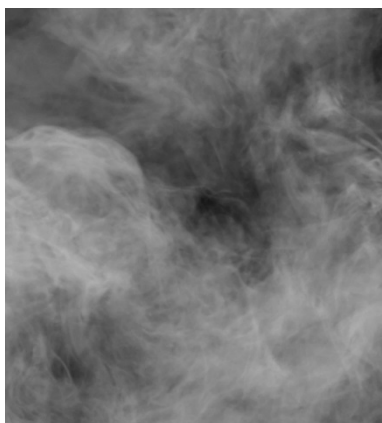
DEPAL = aluminum diethyl phosphinate.

PSMP = pentaerythritol-spirobis(methylphosphonate).

DEPZn = zinc diethyl phosphinate.

DOP = 6H-dibenz[c,e] [1,2]oxaphosphorin,6-[(1-oxido-2,6,7-trioxa-1-phosphabicyclo[2.2.2]oct-4-yl)methoxy]-, 6-oxide.

HFR = 1,2-bis(tetrabromophthalimido) ethane.



## Smoke toxicity of façade insulation systems

**Tests on mock external wall facades raise questions on how smoke toxicity might impact building occupants in a fire.** This study publishes work already presented at FRPM2019 (see pinfa Newsletter n°103). Using a 5m high mock wall in a 10m high test enclosure, four façade systems were tested with external ACM (aluminium cladding material) rainscreen, then a cavity, then insulation material against the building wall: ACM with mineral core plus (1) mineral insulation, (2) phenolic foam insulation or (3) PIR (polyisocyanurate) foam insulation and (4) ACM with non-FR polyethylene core plus PIR foam insulation. The tests showed that the ACM panels, irrespective of their filling, did not protect the insulation behind them from fire. Most smoke in the main room exhaust came from the ignition source (wood crib) not the tested materials. A 150x100 mm vent through the wall was added to simulate a "kitchen vent", but gas flow into this was here driven by pressure in the experiment enclosure, and cannot be compared to a real vent opening outside through a building wall. Also, the vent opened into the cavity (between the ACM and the insulation) as well as 'outside' the ACM (which would not be the case in a real building), so collected gases from the cavity. The study found that the gases collected via this "vent" were considerably more toxic with PIR > phenolic > mineral. The study conclusions claims that "occupants sheltering in a room connected to the vent are predicted to collapse" but this is not justified by the data, in that (as indicated above) the vent installation and gas flow do not attempt to simulate reality and the study states "potential toxicity could be much higher, or lower, in a real apartment depending on wind and smoke flow".

*"Smoke toxicity of rainscreen façades", G. Peck, S. McKenna, A. Stec, R. Hull et al., Journal of Hazardous Materials 403 (2021) 123694, <https://doi.org/10.1016/j.jhazmat.2020.123694>*



## Review of fire toxicity of building materials

**More research is needed to correlate bench-scale fire tests on materials to real fire emissions.** The review considers the different toxicants emitted in fires, with acute or chronic impacts, including incapacitation; different materials fire emissions test systems; and emissions from different building materials including wood (nearly all of which will contain preservative treatment chemicals), engineered wood products (laminates with different resins and bonds), synthetic polymers, insulation materials and foams, with and without flame retardants. The authors note the interest of the steady-state tube furnace to simulate different fire conditions, the need to correlate to real fire emissions, and the need for further research into possible chronic toxicants impacts on firefighters and toxic pollutants in soot deposited at fire sites and in the nearby environment.

*“Toxicity of combustible building materials – scoping study”, A. Walsh, BRANZ SR454 (2000)*

[https://d39d3mj7qio96p.cloudfront.net/media/documents/SR454\\_Toxicity\\_of\\_combustible\\_building\\_materials\\_-\\_scoping\\_study.pdf](https://d39d3mj7qio96p.cloudfront.net/media/documents/SR454_Toxicity_of_combustible_building_materials_-_scoping_study.pdf)



## Electric vehicle fire tests

**Swiss tests show how fast and violently electric vehicles can burn and note specific pollution risks in fire-fighting waters.** The fire tests were carried out by AG/EMPA for the Swiss Federal Government, using charged batteries in scenarios representing a non-ventilated underground car park, a car park with sprinklers and a ventilated tunnel, using 1/8<sup>th</sup> of a full size battery in a similarly scaled-down enclosure. Within minutes of ignition, metre long flames are shooting out from the battery. Large amounts of black smoke and soot are emitted. The report concludes that the fire and smoke/soot dangers are comparable to those from an internal combustion engine car with fuel, but that the fire extinction waters are highly toxic. They also underline that after extinction, the battery must be kept under water to prevent reignition.

*“Risk minimisation of electric vehicle fires in underground traffic infrastructures”, Swiss Federal Department of the Environment, Transport, Energy and Communications DETEC, ref. AGT 2018/006, August 2020*

[https://plus.empa.ch/images/2020-08-17\\_Brandversuch-Elektroauto/AGT\\_2018\\_006\\_EMob\\_RiskMin\\_Undergr\\_Infrastr\\_Final\\_Report\\_V1.0.pdf](https://plus.empa.ch/images/2020-08-17_Brandversuch-Elektroauto/AGT_2018_006_EMob_RiskMin_Undergr_Infrastr_Final_Report_V1.0.pdf) and media summary in French

[https://www.empa.ch/web/s604/standard-article-view-page/-/asset\\_publisher/lqGNyH2TDWyn/content/fire-test-in-a-tunnel/pop\\_up](https://www.empa.ch/web/s604/standard-article-view-page/-/asset_publisher/lqGNyH2TDWyn/content/fire-test-in-a-tunnel/pop_up)

AMPA TV video on YouTube (2 minutes)

<https://www.youtube.com/watch?v=2O07SlaxB08>



## Full-scale metro carriage test burn

**Tests on a China metro carriage, as before today's fire standards, exceeded 1000 kW heat in less than three minutes.** The 2B-type carriage used (internal dimensions 1.9 x 3 x 2.65 m) was manufactured early on for the China metro system, before improvements made to fire protection standards over the last ten years such as CJ/T 416-2012). Ignition was by 10 litres of gasoline. From around 1 ½ minutes after ignition, several windows break and fire spreads inside the carriage. By 3 minutes, flames are spread widely inside the carriage, along the roof and are spurting out of broken windows. Occupants would have around 10 seconds to feasibly escape such a fire. By 30", the temperature has reached 150°C 1.5m above the floor throughout the carriage. Breakage of windows by the fire is critical to letting in oxygen and accelerating the fire.

*"Metro train carriage combustion behaviors – Full-scale experiment study", C. Shi et al., Tunnelling and Underground Space Technology 104 (2020) 103544 <https://doi.org/10.1016/j.tust.2020.103544>*



## FRs in furniture and in dust

Data from California show lower levels of some halogenated FRs in dust with lower furniture fire safety standards. Dust was collected from only US colleges in New England (86 samples) in which furniture installed had been subject to different fire safety standards: TB113 (strict for public spaces, repealed in 2019), TB-117 (small flame fire resistance private dwellings, repealed 2013), TB-117-2013 (cigarette resistance only, since 2013). Data for 14 FRs in dust are compared (10 brominated, 3 chlorinated, one non-halogenated phosphorus TPHP). All the brominated FRs and one chlorinated were significantly higher in dust where TB133 was applicable. Five of the brominated FRs were significantly lower under TB117-2013 than under TB117. TPHP showed (non significantly) higher concentrations in dust with less demanding requirements (TB117-2013 > TB117 > TB133). It is not clear why brominated FRs phased out over 15 years ago (peta- and octa-BDE) are found in spaces furnished post-2013, nor how the progressive phase out of other brominated FRs (deca-BDE, HBCD) is considered in the analysis (lower levels for these in more recently furnished spaces can be expected irrespectively of furniture fire safety standards applicable).

*"Flame Retardant Concentrations Are Lower in College Spaces Meeting the New Furniture Flammability Standard TB117-2013", K. Rodgers et al., Environ. Sci. Technol. Lett. 2020 (in print) <https://dx.doi.org/10.1021/acs.estlett.0c00483>*

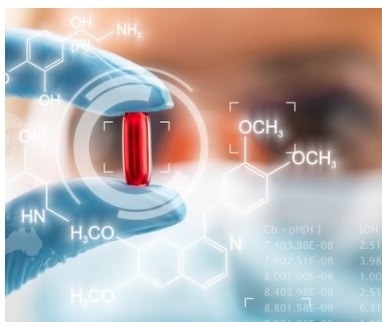




## Flame retardants and microplastics

**Release of flame retardants from microplastics in the environment are very low and unlikely to pose significant risk**, is the conclusion of a review of nearly 200 publications. Extremely slow diffusion in the plastic matrix is identified as the limiting factor for release. However, this could be accelerated by reduction of microplastic particle size with weathering over time, or degradation of the polymer after ingestion by aquatic organisms. It should be noted that the data supporting this paper conclusions concerns only halogenated FRs. pinfa suggests that studies are needed on PIN flame retardant losses from microplastics and also that the study conclusions are not applicable for degradable polymers.

*“Release kinetics as a key linkage between the occurrence of flame retardants in microplastics and their risk to the environment and ecosystem: A critical review”, H. Cheng et al., Water Research 185 (2020) 116253 <https://doi.org/10.1016/j.watres.2020.116253>*



## Study suggests no health risk from PIN FRs

A review of organophosphate FRs in indoor dust in China suggests that they do not pose a direct health risk. The review aims to include all relevant data on OPFRs. 618 publications were identified, screened down to cover 41 sampling locations. OPFR levels were highest in dust in offices and electronics waste workshops (total 10 sites). At most sites, OPFRs most present were chlorinated, except in electronics waste site (higher levels of aryl OPFRs). Levels found in indoor dust in China, at around 0.01 ppm total all OPFRs, are significantly lower than those reported in many other countries (Brazil, Japan, UK, Canada, Germany, Norway ...). Estimated daily intake by ingestion of dust is c. 10 nanogrammes per kg body weight for children (lower per kg for adults) are considered to not pose a direct health risk. The authors suggest that more research is needed on other exposure pathways and on health impacts.

*“A review on organophosphate flame retardants in indoor dust from China: Implications for human exposure”, X. Chen et al., Chemosphere 260 (2020) 127633 <https://doi.org/10.1016/j.chemosphere.2020.127633>*

## PUBLISHER INFORMATION

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