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CONSULTATIONS



Horizon Europe public consultation

The European Commission has launched a **public consultation on Horizon Europe, closing 8th September 2019**, including inviting comments on the **proposed "Orientations" document** which will define the content of Horizon Europe (thematic funding, Missions, Partnerships ...). The documents for consultation scarcely mention fire, referring only to the increased risk of wildfires with climate change (p9, p62, but no specific proposals) and (under new technologies) to robot support for firefighters. pinfa will submit comments reminding of the joint stakeholder [letter](#) on fire safety in Horizon Europe (May 2019, see pinfa Newsletter n°102), underlining the importance of fire safety for key Horizon Europe objectives (sustainability, digital, bio-based and circular materials ...) and suggesting the Horizon Europe coordinates with the European Commission's Fire Exchange and Information Platform (FIEP, see pinfa Newsletter n°99). pinfa suggests you also respond to this public consultation (before 8/9/19), as a person or as an organisation, to indicate that fire safety should be better integrated into Horizon Europe programmes and actions.

Public consultation **open to 8th September 2019** (Horizon Europe Co-design 2021-2024 consultation) introduction https://ec.europa.eu/info/news/have-your-say-future-objectives-eu-funded-research-and-innovation-2019-jun-28_en **Orientations document for comment** (Orientations towards the first Strategic Plan implementing the research and innovation framework programme Horizon Europe) https://ec.europa.eu/research/pdf/horizon-europe/ec_rtd_orientations-towards-the-strategic-planning.pdf and online survey and submission form https://ec.europa.eu/eusurvey/runner/HorizonEurope_Codesign_2021-2024

US EPA consults on bans on DecaBDE and PIP

The US Environmental Protection Agency (EPA) has published, **for public comment to 27th September 2019**, a proposal to ban the manufacture, import, processing or sale of products to which DecaBDE and of PIP (phenol isopropylated phosphate 3:1) have been added, with the exception of aircraft and aerospace, replacement (for DecaBDE) or new (for PIP) automotive parts and recycling of DecaBDE-containing plastics. The proposal considers that these substances are PBT (Persistent, Bioaccumulative and Toxic) and also actions on other non flame retardant PBT chemicals. DecaBDE is a brominated flame retardant, widely used until recently. PIP is a plasticiser, anti-compressibility and anti-wear additive (additive in lubricants) and



flame retardant for which the ECHA (European Chemical Agency) website [indicates](#) < 1 000 tonnes/year.

EPA press release, proposed rule and access to consultation, docket EPA-HQ-OPPT-2019-0080, 21st June 2019, open to 27 September 2019 <https://www.epa.gov/assessing-and-managing-chemicals-under-tsca/persistent-bioaccumulative-and-toxic-pbt-chemicals-under>



EFSA consultation on chlorinated paraffins in food

The European Food Safety Agency has opened a **public consultation to 17th September 2019** on risks to human and animal health from chlorinated paraffin contamination in food and feed. This concerns short chain chlorinated paraffins SCCPs, medium chain MCCPs and long chain LCCPs, which are used as lubricants, as flame retardants and as additives in rubbers, plastics and sealants. The draft EFSA Opinion submitted to consultation notes that very limited data is available concerning the occurrence of these substances in human food, and none concerning animal feed, and concludes that more information is needed on analytical methods, occurrence in food and feed, toxico-kinetics and chronic toxicity.

“Public consultation: chlorinated paraffins in food and feed”, open to 17 September 2019 <http://www.efsa.europa.eu/en/press/news/public-consultation-chlorinated-paraffins-food-and-feed>

NEW PINFA MEMBER



ICL becomes member of pinfa

We are very excited to join pinfa, said Yaniv Kabalek, Senior Vice President, Flame Retardants at ICL. A global specialty minerals and chemicals company, ICL operates bromine, potash, and phosphate mineral value chains in a unique, integrated business model. As a company with a broad flame retardants portfolio and as a company we are committed to provide customers with the highest performing sustainable products. Pinfa offers us a strong platform to communicate this and the critical role of flame retardants play in public safety says Mr. Kabalek. Fire safety is ever more relevant in our modern mobile world and flame retardants used in combustible plastic materials are critical chemistries that stop ignition, prevent fires, and so save lives and property. We look forward to contributing to the important pinfa outreach and programs highlighting these benefits.

<http://www.icl-group.com/flame-retardants/>

REGULATORY



House of Commons
Environmental Audit Committee

Toxic Chemicals in Everyday Life

UK Parliament report on “Toxic Chemicals”

The UK Parliament (Environmental Audit Committee) has published its report on “Toxic Chemicals in Everyday Life”, following a Parliamentary public enquiry process (see pinfa Newsletter n°102). The Government now has two months to respond. The report has been widely mediatised with alarmist titles (e.g. [The Guardian](#) “Britons being exposed to toxic chemicals from birth, MP’s say”) with flame retardants fingered as the first issue, despite the report also pointing to other questions, such as chemicals in plastic food and beverage packaging. The UK Parliament website [suggests](#) that 71% of the public are “very concerned” about chemicals in consumer

products, but in fact this is not representative because it is based only on the c. 500 respondents to the consultation. This website flags three recommendations: a) develop a new “flammability test standard” for furniture, based on smouldering cigarette; (b) wildlife and human biomonitoring; and (c) labelling for chemicals in consumer products. In fact the report makes twenty-seven recommendations, covering circular economy for chemicals, disposal of waste furniture containing brominated FRs, biomonitoring, limitations on chemicals in food and drinks packaging, addressing PFOA and PFOS, fire safety requirements for furniture (finalise the currently pending revision of the UK Furniture Fire Safety Regulations and “bring the UK into line with the rest of the EU” – that is considerably reduce the fire safety requirements), exclude children’s products from the scope of the Furniture Fire Safety Regulations, classify certain firefighter cancers as work-related, increase compliance control resources for chemicals in products, reform the labelling for chemicals in consumer products (e.g. pictograms for chemicals of concern), define a “non toxic environment” UK chemicals policy (including eliminating endocrine disrupter chemicals from children’s products) and launch a national chemicals safety research programme. Flame retardants specifically cited in the report are several brominated FRs (PBDEs, TBBA, HBCDD), chlorinated FRs (TCEP, TCPP, TDCP) and triaryl phosphates.

UK Parliament, House of Commons, Environmental Audit Committee report “Toxic Chemicals in Everyday Life”, 16th July 2019, 87 pages

<https://publications.parliament.uk/pa/cm201719/cmselect/cmenvaud/1805/1805.pdf>



UK Government Advice on HPL claddings

The UK Government has issued an official “Advice Note” to building owners concerned by HPL (high pressure laminate) panels in external wall systems, to be read in complement to the December 2018 Advice Note on panel systems. This indicates that panels with Euroclass C or D or “any type of panels containing combustible insulation” are unlikely to resist fire spread and that concerned building owners should take immediate action. The Advice specifies that HPL panels may or may not be flame retarded, and that FR HPL panels are typically Euroclass B-s1, d0. It is also indicated that even FR panels with stonewool insulation, as known today, do not achieve Euroclass A1 or A2-s1, d0, as now required for UK residential buildings >18m high (new or renovation).

UK Government “Guidance. Advice for owners of residential buildings with HPL systems.

Advice for building owners on buildings with high pressure laminate (HPL) systems over 18 metres tall.” 18 July 2019 <https://www.gov.uk/government/publications/advice-for-owners-of-residential-buildings-with-hpl-systems> and “Guidance. Advice for building owners: external wall systems that do not incorporate ACM. Advice for building owners on external wall systems that do not incorporate Aluminium Composite Material.” December 2018

<https://www.gov.uk/government/publications/advice-for-building-owners-external-wall-systems-that-do-not-incorporate-acm>

<https://www.gov.uk/government/publications/advice-for-building-owners-external-wall-systems-that-do-not-incorporate-acm>

Queensland State to ban “flammable cladding”

The Government of Queensland State, Australia, has announced that it will regulate to ban “flammable cladding” on all new buildings. This is presented as concerning “all aluminium composite panels with a polyethylene core of greater than 30%” and would concern all new buildings, of any height. It is not clear if building renovation is also covered, but the State is calling on Australia to enact a national ban on import of all aluminium panels with a polyethylene core. Building certifiers will be required to



Queensland
Government

verify that there has not been product substitution during construction. The move is supported by the construction sector, because it aims to resolve current difficulties to obtain insurance. The Government is now working on the detailed specifications of the proposed regulation.

“Queensland Government to ban combustible cladding”

<http://statements.qld.gov.au/Statement2019/7/3/queensland-government-to-ban-combustible-cladding>



The Scottish Government
Riaghaltas na h-Alba

Scotland updates to building fire regulations

The Scottish Government has published [updates](#) to building standards, applicable for building work permitted or starting after 1/10/2019, including significant new requirements for fire safety. New fire resistance requirements are specified for cladding materials used on external walls >11m high (EuroClass A1 or A2 specified). Buildings >18m high have further requirements including a second escape staircase, alert and signalling systems. Documentation of compliance requirements for fire safety requirements for new high-rise buildings is reinforced. Furthermore, by February 2021, all domestic properties (existing and new) will be required to have a smoke alarm in the generally used daytime living room as well as in the circulation space in every storey, and also heat alarms in every kitchen, carbon monoxide alarms on all fixed combustion appliances, and with alarms interlinked.

Scotland building standards update: <https://www.gov.scot/policies/building-standards/monitoring-improving-building-regulations/> and summaries <https://news.gov.scot/news/new-fire-safety-standards-for-scottish-homes> and <https://www.ukconstructionmedia.co.uk/news/scottish-fire-safety-standards-improve-high-rises/>



ECHA delays restriction on chlorinated P-ester FRs

The European Chemical Agency, ECHA, has “withdrawn” a proposal to restrict the use of chlorinated phosphorus ester flame retardants (TCEP, TCPP and TDCP, and a mixture of these) in flexible polyurethane foams (PUR) in certain products (see pinfa Newsletter n°92). ECHA state that this is because new data expected from the USA on the carcinogenicity of TCPP (US NTP studies - National Toxicology Program) are not yet available. ECHA indicates that the restriction proposal is withdrawn pending information on the availability of this data.

TCEP: tris(2-chloroethyl) phosphate; TCPP: tris(2-chloro-1-methylethyl) phosphate; TDCP: tris[2-chloro-1-(chloromethyl)ethyl] phosphate. ECHA “Screening report. An assessment of whether the use of TCEP, TCPP and TDCP in articles should be restricted” 5th April 2018 https://echa.europa.eu/documents/10162/13641/screening_report_tcep_tcpp_tdc_p_en.pdf/e0960aa7-f703-499c-24ff-fba627060698 and withdrawal of restriction proposal <https://echa.europa.eu/registry-of-restriction-intentions/-/dislist/details/0b0236e1829a30b8>

MEDIA AND COMMUNICATION



Google commits to use “safer flame retardants” by 2023

Google’s new report “A circular Google in a sustainable world” states as a mission “To accelerate the transition to a circular economy in which business creates environmental, economic, and community value through the maximum reuse of finite resources”. Objectives fixed include to “Use safer flame retardants and solvents across our consumer electronics product portfolio by 2023” (within a wider objective of promoting “healthy materials and safe chemistry to enable perpetual recycling”),

as well as using “red-list free materials” in buildings, eliminating antimicrobials from electronics, reducing food waste, prioritising use of recycled materials (including of rare earth metals). This follows a 2018 Google report, with the Ellen MacArthur Foundation on safe chemistry for the circular economy, in which flame retardants are cited as accumulating in breast milk. This report concludes three priority actions: increasing access to quality chemical hazard assessment data, creating demand for safer materials innovation and driving innovation in recycling technology and infrastructure.

Google sustainability reports: <https://sustainability.google/reports/>

“A circular Google”, June 2019 <https://services.google.com/fh/files/misc/circular-google.pdf>

“The role of safe chemistry and healthy materials in unlocking the circular economy” 2018 https://storage.googleapis.com/qweb-sustainability.appspot.com/pdf/Role-of-SafeChemistry-HealthyMaterials_CircularEconomy.pdf



Room tests show UK furniture regulations effective

Nine full-scale furnished room fire tests were carried out with furniture corresponding to current UK, French and US fire safety requirements. The UK Furniture Fire Safety Regulation require both smoulder and open flame fire resistance whereas France (EN 1021-1) and the US (current California TB117-2013) require smouldering cigarette resistance only. Ignition in the room tests was by cribs 4, 5 and 6 placed on an upholstered couch, in contact with the back cushion. Each room (ISO 9705 standard) was identically furnished with a three-cushion couch, a similar upholstered armchair (identical IKEA models manufactured to the national fire standards), a flat-panel TV (purchased on the relevant national market), a coffee table and a bookshelf with books. Time to transition from white to black smoke was five times longer for the UK rooms than for the France or US rooms. Total smoke produced was half. Time to peak smoke release was increased from around 8 to around 20 minutes. Chlorinated and brominated dioxins and furans were low in all cases, but were higher in black smoke. PAHs, especially the more toxic compounds, hydrogen cyanide and carbon monoxide emissions were also higher in the France and US rooms. Peak heat release rates for the UK rooms were on average 200 kW lower than for the US rooms, and 400 kW lower than for the France rooms (i.e. around 10% lower) and time to flashover was five times longer. The authors conclude that, in full-scale furnished rooms, the “UK standard does provide a significantly better performance” for peak heat release, time to peak heat release, time before smoke release, total smoke release and smoke toxicity.

“Comparative Room Burn Study of Furnished Rooms from the United Kingdom, France and the United States”, M. Blais, K. Carpenter, K. Fernandez, Southwest Research Institute (SWRI), USA. *Fire Technology*, pp. 1-26, 2019 <https://doi.org/10.1007/s10694-019-00888-8> Funded by the North American Fire Retardant Association and the American Chemistry Council.

Photo: US Room at 8 ½ minutes: room is in flashover with all contents burning and the whole laboratory has filled with smoke.



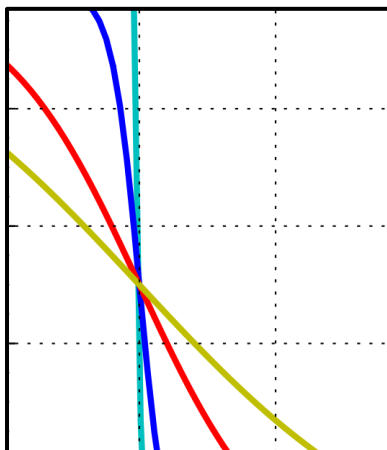
Media recognise value of FRs in protecting cars

Fox2, USA, has published a story warning the public that a water bottle left in a car in the sun can be a fire risk. The article quotes however the Getty Conservation Institute: “seats are designed to be fire-retardant and self-extinguishing, thus your car seat is more likely just have a burned hole in it than to actually catch fire.” Most car manufacturers worldwide respect the US standard FMVSS 302 (horizontal burn test)

for car interiors, including seats, arm rests, panels, floor coverings, etc. Although this is much less demanding than for example UL 94-V0, it may indeed (as suggested) be sufficient to prevent a fire starting from a point heat source resulting from sun through a bottle.

"Warning: Leaving bottled water in your car could start a fire", Fox2 Detroit, 18th July 2019
<http://www.fox2detroit.com/news/local-news/warning-leaving-bottled-water-in-your-car-could-start-a-fire>

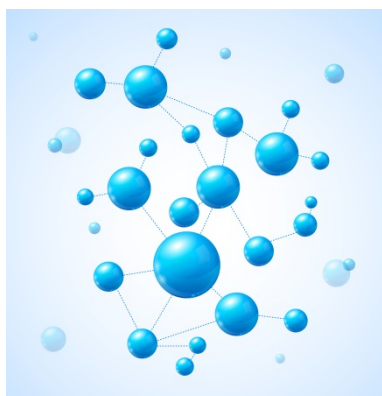
RESEARCH



Fires starting in furniture cause 14% of fire deaths

A study of fire statistics in Massachusetts 2003-2016 shows that fires involving furniture caused 14% of all residential fire deaths. Data was assessed from 158 862 residential fires reported as causing human or monetary damage. Fires with no information on fire cause and intentional fires were excluded, leaving 34 081 fires analysed. Of these, 2% were identified as starting in upholstered furniture, but these caused 14% of fire deaths. Fires starting in upholstered furniture had a higher risk of fire death than those starting in other items. This does not take into account fires starting in other items, but spreading via furniture. The authors however choose to emphasise in the study conclusions the higher casualty risk from fires started in furniture by smoking materials (38 such casualties, that is a low number on which to base conclusions) compared to furniture fires started by open flame sources. It is noted that casualties from fires started by smoking materials did not decrease after the 2008 Massachusetts Fire Safe Cigarette law. No attempt is made to analyse whether the higher casualties from fires started by smoking materials might be related to socio-economic factors (income, housing quality, alcohol consumption ...) which may be correlated to smoking.

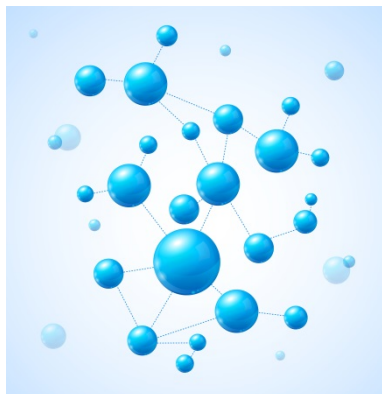
"Health Toll From Open Flame and Cigarette-Started Fires on Flame-Retardant Furniture in Massachusetts, 2003–2016", K. Rodgers et al., Research and Practice 2019
<https://doi.org/10.2105/AJPH.2019.305157> Study supported by Healthy Babies Bright Futures and by Silent Spring Institute.



Dimelamine pyrophosphate PIN FR for epoxies

Dimelamine pyrophosphate (DMPY) was synthesised in one step (97% yield) from melamine and sodium pyrophosphate, then tested as a flame retardant in DGEBA/PDA epoxy resin at 0 – 12% loading. UL94-V1 (3.2 mm) was achieved at 8% DMPY and V0 at >9%. LOI was increased by up to 50% (at 12% loading). At 9% DMPY, peak smoke release rate and total smoke production were both reduced by >40%. Moisture resistance and mechanical properties of the FR resin were considered good. The FR resin generated intumescent, coherent and structured char. The authors conclude that DMPY could offer a wide application, low-cost PIN FR solution for epoxies.

"Economical and facile synthesis of a highly efficient flame retardant for simultaneous improvement of fire retardancy, smoke suppression and moisture resistance of epoxy resins", L. Liu et al., Composites Part B 167 (2019) 422–433,
<https://doi.org/10.1016/j.compositesb.2019.03.017>



Zinc triazine and APP synergy

A zinc oxide – organic triazine compound (OTCA-ZnO) was prepared and tested as a flame retardant in EVA (ethylene-vinyl acetate polymer) in combination with APP (ammonium polyphosphate) at total loading of 25% (App 0-25%, OTCA-ZnO 25-0%) by melt-mixing. OTCA-ZnO particles showed average size around 100 nm and better dispersion in EVA than zinc oxide (reaction of the ZnO surface hydroxyl groups). At 16-20% APP and 9-5% OTCA-ZnO, UL94-V0 (3.2 mm) was achieved, LOI was increased from 17% to 30%, melt-dripping was reduced and peak smoke production rate was reduced by more than 60%. These effects are considered by the authors to result from retention of P, N and Si in the char, so strengthening the char structure.

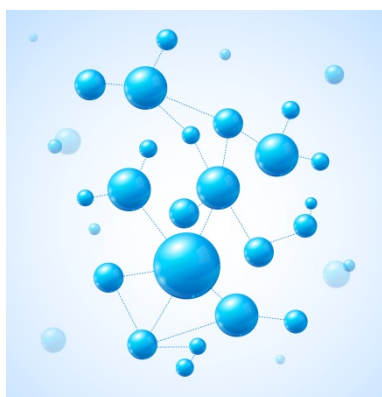
“Enhancement of an organic–metallic hybrid charring agent on flame retardancy of ethylene-vinyl acetate copolymer”, B. Xu et al., Royal Society Open Science, 6: 181413, <http://dx.doi.org/10.1098/rsos.181413>



Phosphate mine waste effective as FR

“Phosphorus tailings” - waste generated in large quantities by phosphate rock mining (in this study, from Tiaoshuihe phosphate mine, Hubei Sanning Mining, China) were tested as a flame retardant, at 2.5 – 10% loading, with 15 – 25% aluminium hypophosphite, in TPU (thermoplastic polyurethane). The tailings contain calcium-, phosphorus-, silicon-, magnesium-, iron- and aluminium- minerals. The phosphorus tailings were first surface modified with ammonium and silane coupling agent to improve polymer compatibility. Peak heat release and peak smoke release were significantly reduced, further than achieved by aluminium hypophosphite alone, down to 9% and 34% of values for neat TPU. The authors conclude that surface-modified phosphorus tailings and aluminium hypophosphite act synergistically to improve fire performance of TPU, and that this could represent a valorisation route for this waste material. Pinfa notes however that possible implications of contaminants in the phosphorus tailings should be assessed (e.g. heavy metals).

“Synergistic effect between phosphorus tailings and aluminium hypophosphite in flame-retardant thermoplastic polyurethane composites”, Q. Zhou et al., Polym Adv Technol. 2019;1–8. <https://doi.org/10.1002/pat.4695>



Sulfenamide synergists for PIN FRs

Sulfenamides are organic PIN chemicals containing nitrogen-sulphur bonds and carbon rings. Five different sulfenamides were synthesised, with in some cases additional nitrogen groups, and were tested as synergists to PIN flame retardants in polypropylene (phosphonate ester, aluminium hypophosphite, AHP, ATH, APP). The N-S bond in these sulfenamides had low basicity and was stable at plastics processing temperatures. Previous publications (see Tirri, pinfa Newsletter n°74) have shown sulphonamides to be effective PIN FR synergists in polyethylene and polystyrene. In this paper, in polypropylene, 0.5% loading of sulphonamides achieved UL94-V0 (1.6 mm) with <10% total FR + synergist loading, or UL94-V2 at <5%. Peak smoke release rate occurred 3-4 times later than for neat polypropylene, resulting in lower total smoke release. Peak and total carbon monoxide release were also considerably lower. The authors conclude that radicals released by decomposition of the sulphonamides in fire improve the thermal stability of char, and that these sulphonamides have potential as PIIN flame retardant synergists.

“Sulfenamides in synergistic combination with halogen free flame retardants in polypropylene”, T. Tirri et al., Polymer Degradation and Stability 164 (2019) 75e89, <https://doi.org/10.1016/j.polymdegradstab.2019.03.021>