

pinfa in Action

Looking for partners for Br-FR substitution
Free webinar: milligram scale fire testing
European Fire Safety Week 16-20 November

Fires and Fire Safety

Fire risks of photovoltaic DC inverters
Tragic Bangkok pub fire
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PINFA IN ACTION



Looking for partners for Br-FR substitution

At pinfa's 3rd sparks webinar, Maria Expósito Delgado, AIMPLAS presented the EU-funded HEFESTOS initiative and its approach to supporting the transition from brominated flame retardants (BFRs) towards safer and more sustainable alternatives. HEFESTOS aims to establish a pilot Brominated Flame Retardants Substitution Centre to explore and facilitate the substitution of BFRs in sectors such as automotive, construction, cables, and other relevant applications. The initiative brings together actors from across the value chain, including industry, research and technology organizations, associations, and regulatory bodies, with particular attention to the participation and needs of SMEs. The initiative provides a trusted space for exchanging information and jointly analysing the technical, economic, logistical, and regulatory aspects of substitution, covering the entire value chain, from the production and supply of flame retardants through processing and application to their final use. Activities include the collection and analysis of relevant information, exchanges among stakeholders with an in-person workshop planned in Brussels in 2027, where the approach developed for the pilot Brominated Flame Retardants Substitution Centre will be tested together with participating stakeholders.

By joining the initiative, organisations can gain access to a network of relevant actors working on flame retardant substitution, increase their visibility within the network and have the opportunity to contribute practical industry perspectives that can help inform future EU policies and actions.

Watch pinfa's 3rd sparks webinar here https://www.youtube.com/watch?v=dYqk_Qlhkzk

Watch pinfa's 2nd sparks webinar "Closing the Loop: Recycling Strategies for Flame Retardant Additives", with Nacho Montesinos Beltrán, AIMPLAS: <https://youtu.be/mH6uAYmdvis>

Watch pinfa's 1st sparks webinar "Recycling of PIN FR plastics, with Michael Grosshauser, Fraunhofer LBF https://www.youtube.com/watch?v=MmsMaqkuV_I

Free webinar: milligram scale fire testing

21st October. Fernando Raffan-Montoya, University of Maryland. Milligram-scale flame calorimetry for FR screening. Milligram-scale flame calorimetry is a technique that has been developed at the University of Maryland (UMD) for over a decade as a means to screen gas-phase flame retardants, in order to pre-select before engaging larger scale fire performance testing. It has now been benchmarked for a variety of polymers, fabrics, and even battery components. This webinar will present a history of the milligram-scale flame calorimetry apparatus developed, along with a discussion of results from academic-industrial partnership projects. Future ideas for the device will also be presented, along with additional testing capabilities at UMD. Host: Shannon Gainey, PhD, pinfa-NA (Huber). Moderator: Roger Avakian, pinfa-NA (Avakian PolyChem Consulting)

"Present and Future of Milligram-scale Flame Calorimetry: How an Academic Research Project can Benefit the Material Flammability Industry", free pinfa-NA webinar: Wednesday 21st October 2026, 11:30 - 12:30 EDT (USA) = 17h30 - 18h30 CEST (Brussels time). This is pinfa-NA's 24th Lunch and Learn (L&L) webinar.

Registration https://us02web.zoom.us/webinar/register/WN_0vp64JEdRr--BG6EmkEIBQ

Watch previous pinfa-NA L&L webinars <https://www.pinfa-na.org/webinars-all>

European Fire Safety Week 16-20 November

pinfa engages with EFSW2026 with a session on new home fire safety risks and in the European Parliament workshop. The pinfa session, online 17th November 14h-15h15 will discuss evolving home fire risks resulting from integration of new electric technologies and energy systems, new advanced materials and increasing fire loads. With Krzysztof Biskup, European Fire Safety Alliance, Martina Manes, University of Liverpool, Iben Hansen-Bruhn, Danish Institute of Fire and Security Technology (DBI), Thomas Futterer, Budenheim and pinfa Chair, Esther Agyeman-Budu, Sector Group Manager for pinfa at Cefic. pinfa is also partner of the European Fire Safety Week high-level meeting on fire safety in EU housing policy in the European Parliament.

Webinar: Modern homes, new fire risks: what safety needs to keep up? 17th November 14h-15h15 (CET). Part of European Fire Safety Week (European Fire Safety Alliance), 16 – 20 November 2026
<https://www.europeanfiresafetyalliance.org/european-fire-safety-week/>

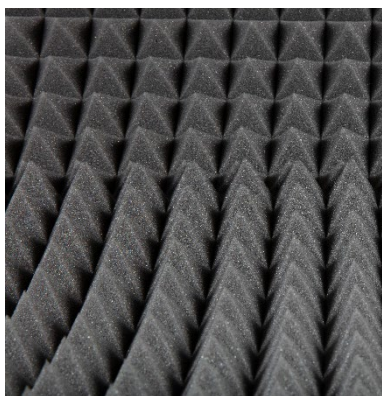
FIRES AND FIRE SAFETY



Fire risks of photovoltaic DC inverters

International Fire & Safety Journal summarises fire risks of PV panel DC inverters, prevention measures and standards. Studies show that many solar panel fires are related to inverters (which convert the direct current DC from the panel to mains alternating current AC) and related isolators and connectors. Inverter fires can result from overheating (from electrical load and/or climate), deterioration of electrical insulation, current leakage to earth (e.g. with humidity), internal component failure (capacitors, relays, circuit board and memory deterioration leading to control faults). Data suggests that in around a third of cases, inverter fire risks are due to poor installation, such as wiring errors, loose terminals or inappropriate placement leading to excessive heating. Remote monitoring systems can detect issues and reduce risks. Above all, equipment should be certified to standards such as IEC 62109, UL 1741, UL 1699B as well as complying with local electrical codes and building regulations.

“How Solar Inverter Failures Contribute to Fire Hazards in Modern Photovoltaic Systems”, Iain Hoey, International Fire & Safety Journal, 12 June 2026 <https://internationalfireandsafetyjournal.com/solar-inverter-failures-and-fire-hazards/>



Tragic Bangkok pub fire

Phrao Beer Hall kills over 40 people. Authorities initially say aircon electrical fault ignited flammable sound insulation foam. This sounds sadly similar to other nightclub fires over recent decades (including in Thailand, Mountain B, 2022, 24 dead and Santika, 2009, 77 dead, see pinfa Newsletter 142). City authorities underline that investigations are underway and that an initial assessment indicates that a short circuit in an air conditioner in the ceiling set fire to adjacent flammable soundproofing foam. The establishment was not required to use flame-retardant materials because it was registered as a restaurant with live music (not an entertainment venue). The venue had undergone inspection and passed as safe three months before the fire. Authorities have announced that fire retardant foam and other fire safety requirements will in the future be applied to bars and restaurants such as this one.

Photo: illustrative, typical sound insulation foam

Rong Beer Na Lat Phrao (beer hall), Bangkok fire, 12th July 2026

“Bangkok’s bar fire is the city’s latest deadly blaze - will anything ever change?”, BBC, 15th July 2026

<https://www.bbc.com/news/articles/cd6e68n3jz50>

“Thai police charge pub owner as Bangkok fire death toll rises to 41”,

Reuters, 18th August 2026 <https://www.reuters.com/world/asia-pacific/thai-police-charge-pub-owner-bangkok-fire-death-toll-rises-41-2026-08-18/>



US NFPA study: home electric fires

Over 45 000 fires/year with fire service callout in the USA start in electrical equipment, resulting in over 500 civilian deaths, 1 500 injuries and nearly 2.5 billion US\$/year direct property damage. The study by the US National Fire Protection Association (NFPA) covers 2020-2024. Most of these fires started in kitchen, bedroom or attic/ceiling. Misfunction of electrical equipment or installations, in particular electrical distribution, especially by arcing (short circuits) were much the highest identified fire cause. Although only around one fifth of electrical fires occurred at night, these were responsible for over half of the fire deaths.

"Home Electrical Fires", T. McGree, NFPA Research

<https://www.nfpa.org/education-and-research/research/nfpa-research/fire-statistical-reports/home-electrical-fires>

RESEARCH AND INNOVATION

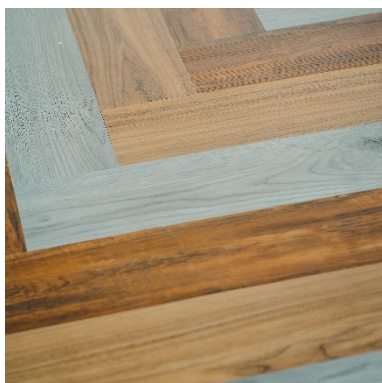


Highly filled HFFR for metal replacement

Domo (pinfa Member) launches performance, resilient, PIN FR PA6 and PA66 polyamide compounds for E&E and EVs. The two compounds are heat-stabilised, 30% glass fibre reinforced, non-halogenated flame retardant compounds and achieve UL 94 V-0 and glow-wire flammability index GWFI 960°C (all at 1.5 mm). They offer high flow for processability to optimise injection moulding of complex parts. Both offer Comparative Tracking Index (CTI) IEC 60112 (solution A) 600 V. Applications include e-mobility batteries, charging stations and power electronics housings. The PA66 solution is adapted for thick-wall applications. It is glycol resistant enabling use in components for electric vehicle cooling systems. The PA6 solution is designed to optimise injection moulding, with flowability around double that of standard PA6 formulations for equivalent fibre loading, enabling faster processing and production of more complex components.

DOMO: "Accelerating sustainable innovation in polyamides" and technical data https://www.domochemicals.com/sites/domo/files/2025-10/domopr2510en_accelerating_sustainable_innovation_in_polyamides.pdf and <https://productfinder.domochemicals.com/ProductFinder/product/technyl-star-s-60x1-v30-bk-15n/01t09000000cXI5AAE>

Photo (Domo): console slide guide using PIN FR PA6

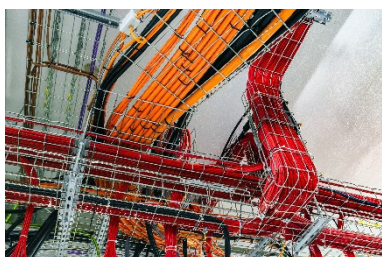


Lanxess future-ready plasticising PIN FR

Lanxess' (pinfa member) new low-carbon plasticising PIN FR offers extremely low TPP and enables reduced antimony. The phosphate ester based PIN formulation with < 0.1% (trace only) TPP (tri phenyl phosphate) ensures flame retardancy performance, high char formation and strong smoke suppression. The formulation offers processing efficiency (low gelling temperature for faster fusion), plasticising effectiveness (softness and low temperature flexibility), light stability and enables reduced or zero use of antimony trioxide (ATO). It is specifically adapted for polar polymer systems, including PVC (polyvinyl chloride) and TPU (thermoplastic polyurethanes), synthetic rubbers and cellulose esters. Use of renewable energy and selection of raw materials brings a carbon footprint 40% lower than conventional alternatives.

LANXESS Launches Disflamoll Advance Platform for extremely Low TPP Plasticizing Flame Retardants", 3rd August 2026

<https://lanxess.com/en/media/press-releases/2026/08/lanxess-launches-disflamoll-advance> and
<https://lanxess.com/en/products/products/d/disflamoll--advance-ot>



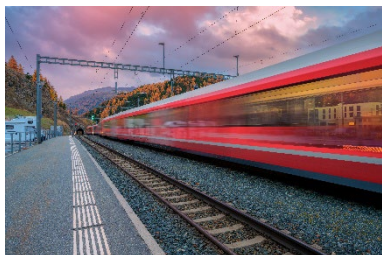
PIN FR sheathing for critical cables

PIN FR compound combines performance, fire safety and low smoke for medium – high voltage cables (LSHF Low Smoke Halogen Free). The compound from Borouge International (ex. Borealis) uses non-halogenated flame retardants in a specific polyethylene foundation resin, the black thermoplastic compound offers strength, toughness and fire performance. It achieves EU Building Products Regulation Euroclass B2ca s1a, d0 (very limited contribution to fire, very low smoke, very low smoke acidity and corrosivity, no flaming droplets). It also aligns to ST12 in IEC 60502-2, 60840 and 62067, for safety and performance of medium to high voltage cables (6kV – 500kV) and has already been approved for use by operators and utilities in Europe for a range of voltages. It can be processed on PE/PVC extruders and is adapted to areas sensitive to smoke and to fire gas corrosivity, including public buildings, high occupancy residential and office buildings, transport infrastructures, data centres.

Borouge International "Borealis Launches Flame-Retardant Sheathing Solution for Safety-Critical Power Cables"

<https://www.borealisgroup.com/news/borealis-launches-flame-retardant-sheathing-solution-for-safety-critical-power-cables>

Photo provided by Borouge International: Borealis FR6012, a new halogen free flame retardant monolayer sheathing compound for medium to extra high voltage cables. Sample courtesy of NKT



HFFR rail-ready 3D-print thermoplastic

Stratasys non-halogen flame retardant thermoplastic for FDM® printing to railway fire safety standards (EN 45545-2 HL2 R22/R23 and FMVSS 302). FDM (Fused Deposition Modelling, or Fused Filament Fabrication) layer by layer 3D printing allows robust industrial printing of complex, technical components for transport, electronics and infrastructure applications. Stratasys' polyamide (FDM® PA6/66-GF30-FR) with 30% glass fibre and phosphinate (non-halogenated organo-phosphorus flame retardant) offers rail system requirement fire performance (EU and US: R22:HL2 and R23: HL3 @ 1 and 7 mm), low smoke toxicity (EN 17084 Method 1, ITC 4 and 8 minutes 0.01 – 0.4 for 1 – 7 mm) high stiffness and strength, durability and aesthetic surface finish for certified railway parts and spare part replacements. Stratasys is leading the global shift to additive manufacturing with innovative 3D printing solutions for industries including aerospace, automotive, consumer products, and healthcare.

"Stratasys Advances Rail-Ready Additive Manufacturing With Certified Flame-Retardant FDM Material", 17 July 2026

<https://www.businesswire.com/news/home/20260617094200/en/Stratasys-Advances-Rail-Ready-Additive-Manufacturing-With-Certified-Flame-Retardant-FDM-Material>

Photo Stratasys

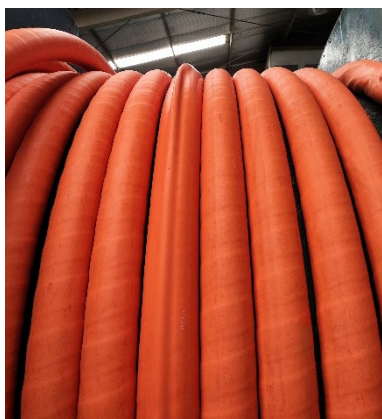
https://mms.businesswire.com/media/20260617094200/en/2833756/5/Stratasys_PA6_66_rail_handle_train.jpg?download=1



HFFR orange PPA for electric vehicles

Syensqo launches PIN flame retardant orange polyphthalamide (PPA) for EV electrical vehicle safety and performance. The bright, heat-stabilised orange colour ensures durable safety by identifying high-voltage connectors and busbars according to EV safety protocols and ensuring that the colour is maintained over prolonged, high-temperature operation. The pre-coloured resin streamlines parts manufacturing. The compound is designed to meet ISO 6469-3 (EV electrical safety) and IEC 60664 (electrical equipment up to 1500V DC). Non-halogenated flame retardants ensure fire performance to UL 94 V-0 (0.8 mm). The compound offers dimensional stability, low warpage, chemicals and fuels resistance, low water absorption (0.28% 24h ASTM D570) 0.36% ISO 62, and mechanical and electrical performance (including CTI 600V - IEC60112).

"Syensqo introduces orange-colored grades for critical electric vehicle components", Syensqo, <https://www.syensqo.com/en/press-release/syensqo-introduces-orange-colored-grades-critical-electric-vehicle-components> and <https://www.syensqo.com/en/product/amodel-hffr-4133-nt>



Anti-counterfeit low smoke cables

Nexans is rolling out technology to help ensure that fire safe, low smoke cables are used when safety requires them. After using in some countries a third-party verification system integrated into packaging, Nexans is now developing and rolling out its own system which aims to enable verification not only by the packaging, but also directly in the cable itself, based on 'labelling' of the sheathing compounds. This allows the supply chain to verify that cables are not counterfeit, and so ensure installation of LSZH (Low Smoke Zero Halogen) cables where they are required to reduce fire risk, facilitate egress, and reduce toxic smoke and corrosive fire gases posing problems for electronics and other installations. Counterfeit cables can have reduced copper content, resulting in overheating or short circuits, and can be not conform to fire safety standards. This anti-counterfeit initiative, important for fire safety, is rolled-out in cooperation with national safety authorities in different countries across the world, targeting initially regions where there is an identified link between counterfeit cables present on the market and levels of fire occurrences.

"Nexans Kabelmetal launches 1st low-smoke anticounterfeit cables to combat electrical fires", Nexans Ghana, 2026

<https://thebftonline.com/2026/03/02/nexans-kabelmetal-launches-1st-low-smoke-anti-counterfeit-cables-to-combat-electrical-fires/>

"Partenariat pour combattre la contrefaçon des câbles", Nexans France

<https://www.nexans.com/fr/communiqués-de-presse/nexans-et-authentic-vision-sassocient-pour-combattre-la-contrefaçon-des-câbles/>



Intumescent PIN FR coating without SVHC

Clariant (pinfa member) has launched an ammonium polyphosphate (APP) with <0.1% melamine for use in intumescent coatings. Melamine was added to the EU REACH list of Substances of Very High Concern SVHC in 2023. This does not concern melamine derivate PIN FRs, such as melamine cyanurate, if they contain <1% free melamine (see pinfa Newsletter n°160). The Clariant APP aims to provide a drop-in replacement for APP grades containing intentionally added melamine. APP is used in intumescent formulations for coatings, firestop seals and PIR insulation panels.

"New APP flame retardant grade with less than 0.1% melamine from Clariant", June 2026 <https://www.specialchem.com/coatings/news/svhc-free-flame-retardant-technology-for-compliant-fire-protection-by-clariant>

Photo: Application of coating © Clariant, R. Baumgarten.



PIN composite for building applications

Exel Composites has developed a non-halogenated fire-rated composite material for building and infrastructure applications.

The material achieves a Euroclass B-s2,d0 reaction-to-fire classification, demonstrating limited contribution to fire, low smoke production and no flaming droplets. It meets EN 13706 E23 mechanical performance supporting the application of CEN/TS 19101:2022 design rules for FRP pultruded composite structures. The formulation can be applied across different profile designs starting from a wall thickness of 3 mm and is suitable for facade and wall elements, fire-rated door frames and modular housing structures. With over 650 employees worldwide, Exel is a global leader in pultrusion, serving various industries including buildings and infrastructure, wind energy, power transmission and transportation.

"New fire-rated composite material for European building standards", April 2026 <https://exelcomposites.com/fire-rated-composite-material-european-building-standards/>

"How to manage fire, smoke and toxicity requirements when specifying composites", Exel Composites <https://ideas.exelcomposites.com/fst-requirements-for-composites-whitepaper>



Hexpol non-halogen flame retardant TPE

Hexpol has extended its range of PIN FR thermoplastic elastomers (TPEs) offering UL 94 V-0 (down to 1.5 mm), low smoke and material performance including Shore-A hardness (40 to 90), quality adhesion to different thermoplastics, flexibility, mechanical performance and antistatic or electrical conductivity. The TPE compounds are non-halogenated and without antimony. They can be used in injection moulding or extrusion for applications including electrical connectors, insulators, cables, sockets and join profiles. Formulations are available for applications with specific certifications and approvals including automobile and railway. Hexpol is a global specialist in TPE (thermoplastic elastomer) compounds.

<https://www.hexpol.com/tpe/what-we-offer/dryflex-tpe/>

Photo: Hexpol TPE Materials.

PUBLISHER INFORMATION

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