

Your newsletter for non-halogen fire safety solutions No. 68 July 2016

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For events listing, see www.pinfa.eu

Companies worldwide continue to innovate to develop and implement new PIN flame retardant solutions. Major chemical corporations and dynamic SMEs (masterbatches, applications) are working together to improve fire safety with lower environmental and health impacts. Successful innovative applications shown in this Newsletter include high power electronics (Rogers Corp), highly transparent films (FELS Kunststofftechnik), wigs and hair styling (FRX Polymers Nofia), epoxy moldings for E&E (Henkel), Low Smoke Zero Halogen cables (Salcavi, LAPP), performance polymers for cars (Ascend), conductive polypropylenes (GRAFF) and electronic high-aesthetic, miniaturised electronics (Sony).



Fire safety codes should cover building decorations

The US NFPA (National Fire Protection Association) Journal questions the fire hazard posed by decorative features inside and outside buildings. These are often not covered by fire safety regulations. Examples of fires cited are the Monte Carlo Resort & Casino, Las Vegas, where a fire in a decorative band on the building’s exterior injured 13 people in 2008 and fake palm trees which caught fire on a terrace of the Cosmopolitan Hotel, Las Vegas, in 2015 (see pinfa Newsletter n°60). In both cases, the decorations were of non flame retarded foam. Fires in similar materials indoors have been deadly, most recently at the Collectiv Nightclub, Bucharest, 2015 (pinfa Newsletter n°58). Senior fire protection engineer at NFPA, Tracy Vecchiarelli, says that there is a “gap” in fire codes and that regulation of decorative material outside buildings, especially in assembly areas, should be pursued.

“Looks nice. Burns hot. How much of a fire hazard is posed by decorative features inside and outside buildings?” NFPA Journal [May-June 2016](#), pp 66-68.



Royal Imex adopts FRX Polymers® Nofia®

Royal Imex, California, one of the largest hair companies in the world, selling human and synthetic hair products including wigs, braids and extensions for stylists worldwide, including Zury and First brands. The company has adopted the PIN flame resistant synthetic fibres produced by Uno & Co., South Korea, using FRX Polymers® Nofia® phosphorus-containing polymer to ensure fire safety. The PIN FR fibres have been tested by hair stylists and given excellent reviews for softness, curling ability, feel like human hair.

FRX Polymers® 7th June 2016 “Uno & Company Ltd. Launches New Bromine-Free Synthetic Hair Fibers Using FRX Polymers® Nofia® Flame Retardant Bromine-Free Unolon-Eco and SF-Remi Fibers are Easy to Curl, Tangle-Free, and Easily Blended with Human Hair”

www.frxpolymers.com



265 000 fire deaths worldwide

The World Health Organisation (WHO) has published 2014 data for fire deaths, indicating 265 000 deaths per year worldwide, mostly occurring in low- and middle-income countries and mainly in the home and workplace. 11 million people worldwide suffered burns severe enough to require medical attention. One million people per year in India suffer moderate or severe burns. WHO figures are used by LeDuc Media to provide readily accessible information and present [fire death rates](#) for all countries worldwide.

WHO Media Centre “Burns” <http://www.who.int/mediacentre/factsheets/fs365/en/> and fire death rates per country (per 100 000 population per year) worldwide <http://www.worldlifeexpectancy.com/cause-of-death/fires/by-country/>



Transparent PIN FR for films and sheeting

FELS Kunststofftechnik, German specialist in colour and additive masterbatches, has launched a highly transparent PIN flame retardant masterbatch for plastic films and sheetings: FELSOFILAMM M230. The product also offers good weatherability, UV-stabilising properties and performance mechanical properties compatible with thin film production and end-use, including with low loadings. It also offers full recyclability. Key applications are greenhouse film and construction sheeting. The product can also be supplied in masterbatches adapted to profile and injection moulding. Fire performance compliant to DIN 4102 B1 at 190 µm, DIN EN 13501-1 and UL94-V0 can be achieved for polyethylene and polypropylene films.

“New high transparency, halogen and heavy metal free flame retardant masterbatches for films”, FELS Kunststofftechnik, 4/12/2015 www.fels-kunststofftechnik.de



Laptop lithium battery fire risk product recalls

Several manufacturers have recalled nearly 300 000 lithium ion batteries for laptop computers because they can overheat, posing burn and fire hazards. Recent recalls include Fujitsu notebooks ([24/9/2015](#)), Panasonic ([21/3/2016](#)), Toshiba ([30/3/2016](#)), Lenovo ([21/4/2015](#))

<http://www.cpsc.gov/en/Recalls/>



Nottingham UK: bus “explodes in flames”

May 25th 2016: The driver of a municipal passenger bus, Nottingham UK, managed to get around 20 people off the bus to safety before it was “engulfed by flames”. The driver had been alerted by a member of the public who noticed smoke coming from the bus. Within “only a minute” according to witnesses, the bus was ablaze. A loud bang is indicated to have been a tyre bursting not an explosion.

“Fire engulfs bus in Nottingham suburb as passengers rush to safety”, [Nottingham Post](#)



Apparel brands sustainable chemicals portal

22 clothing and footwear brands, including Nike, Adidas and Levi’s, have launched an MRSL (Manufacturing Restricted Substances List) with the aim of enabling manufacturers to map sustainable chemical products against textile standards such as Bluesign www.bluesign.com, GOTS (Global Organic Textile Standard) www.global-standard.org and OEKO-Tex www.oeko-tex.com. The initiative is part of the ZDHC (Zero Discharge of Hazardous Chemicals) Programme, and includes the 11 “priority hazardous” chemicals in the joint textile roadmap (see Milan Prato in pinfa Newsletter n°63) and specifies formulation limits for chlorinated and brominated flame retardants.

ZDHC Programme “2015 Manufacturing Restricted Substances List” version 1.1 http://www.roadmaptozero.com/fileadmin/pdf/MRSL_v1_1.pdf



PIN flame retardant epoxies for high power electronics

Rogers Corporation offers a range of performance, thermally enhanced, PIN flame retardant epoxies for prepregs and laminates. The 92ML™ materials are thermally conductive (up to 3.5 W/mK in plane), enabling lead-free solder compatibility and use in applications with high power or heat generation such as motor controllers, power supplies, converters, automobile electronics, LED modules, panel backlighting and lamps. 92ML Stacool™ laminates are available with an aluminium plate, providing an integrated heat sink which can also serve as chassis. UL94 V-0 fire performance is ensured.

<http://www.rogerscorp.com/acs/products/1098/92ML-Materials.aspx>



Chemical Footprint - progress towards safer chemicals

#ChemicalFootprint claims to be the first initiative to third-party, independently benchmark chemicals, so providing a tool to investors, purchasers and brands for assessing chemical risks. The project’s first report is based on a survey of 24 manufacturing companies, large and small. It concludes that chemical footprint measurement is new and challenging, that companies need comprehensive policies with senior-level management leadership and perform better when there is full product portfolio policy to improve chemical safety. The report underlines that “Disclosure lags practice”: 83% of surveyed companies have a restricted chemical list, but only 17% make the list public. Flame retardants are mentioned several times, but the report fails to make any distinction between different flame retardant chemicals.

“Chemical Footprint Project Releases First Report on Corporate Progress Toward Safer Chemicals”, 19 May 2016 www.chemicalfootprint.org

	<h3>GRAFE conductive FR polypropylenes</h3> <p>GRAFE Masterbatch has launched two new electrically conductive PIN flame retardant polypropylene compounds, with high mechanical performance and flow properties, offering < 100 Ohm electrical conductivity and UL94 V-0 flammability rating down to 1.6 mm thicknesses. Applications will include storage containers, conveyor belts and other equipment in explosion and fire-protection zones. Products achieve UL94 V-0 down to 0.8 mm thickness and can be produced in any colour for customer requirements. The PIN flame retardant solution used minimises additive-related loss of mechanical properties, avoiding brittleness, ensuring good flow, and so enabling manufacture of thin-walled parts where fire performance is required. Grafe is one of Germany's leading masterbatch producers, leading in innovation in colour and function.</p> <p>GRAFE press release 26/8/2015 "Flame-retardant new developments" www.grafe.com</p>
	<h3>PIN FR PA6.6 for miniaturisation and aesthetics</h3> <p>Solvay has launched new Technyl® halogen-free flame retardant glass-reinforced polyamide 6.6 grades offering high performance for electronics miniaturisation (high flow) combined with high aesthetic quality (low migration). Applications include connectors and small consumer electronics parts. Technyl® A 60SX offers uses non-halogen flame retardants to reduce corrosion during injection processes and to achieve "significant environmental benefits". The low corrosivity during processing reduces maintenance costs and increases productivity of molding equipment. The low migration avoids deposits or vent clogging, and combines with high flow enabling production of thin wall components. The compound is UL 5VA flame class at 0.8mm.</p> <p>"Solvay Launches New Technyl® Halogen-Free Flame Retardant Range to Address Consumer Electronics Miniaturization and Aesthetics Challenges", 10 May 2016 Solvay Technyl see also <i>pinfa Newsletter n° 39</i>.</p>
	<h3>California seeks comments on TDCPP, TCEP</h3> <p>The California regulatory authorities have invited public comments on proposals to add the additive chlorinated flame retardants TDCPP and TCEP to the list of Priority Products for use in foam-padded sleeping products for children. Published documents indicate that these products have been used to replace banned brominated flame retardants (PBDEs) and refer to a range of possible health hazards, presence in human biomonitoring and in household dusts and in the environment. Comment is invited until 29th August 2016.</p>
	<h3>Innovative PIN epoxy molding compound</h3> <p>Henkel offers an "Environmentally Responsible" epoxy heat-cure molding compound for electronics, printed circuit board assembly and other performance adhesive applications, including bridge and axial circuits, TO packages (transistor outline), power discrete and high voltage rectifiers. Loctite Hysol GR 360A uses fused silica as a filler, achieving UL94 V-0 flammability at 6.2mm thickness. Performance parameters include wide molding latitude, thermal and electrical properties, flexural strength and low moisture absorption.</p> <p>Henkel electronics: http://www.henkel-adhesives.com/product-search-1554.htm?nodeid=8799570067457</p>



Expected growth in specialist FR markets

The global market for flame retardant plastics in aerospace applications is expected to grow considerably over the coming decade, driven by an increasing use of polymers, including glass and fibre reinforced, in aircraft for reasons of design flexibility, installation and production cost, technical performance and safety. Health, environment and regulatory concerns are pushing for FRs with reduced toxicity and low smoke. Other recent market reports cover global PIN flame retardant XPLE (cross-linked polyethylene) cables and the US PIN flame retardant market.

“Aerospace Plastic Flame Retardant Market Analysis, Market Size, Application Analysis, Regional Outlook, Competitive Strategies And Forecasts, 2016 To 2024”, [Hexa Research](#) – “Global XLPE Insulation Halogen-free Flame Retardant Cable Industry 2015 Market Growth, Trends and Analysis by 2019” [Market Research Store](#) - “United States Halogen-Free Flame Retardant Industry 2016 Market Research Report”, [QY Research](#)



PIN FRs for performance LS0H cable solutions

Salcavi Industrie has updated its range of LS0H (low smoke, zero halogen) flame retardant cables covering general purpose, high temperature, screened, multi-core, cross-linked and extra-flexible cables. Low smoke is achieved using PIN flame retardants, and means both reduced emission of smoke and fumes in case of fire and reduced toxicity and corrosive gases. LS0H (or HFFR halogen-free flame retardant) is thus very important to ensure public safety in public areas such as cinemas, hospitals, airports, public transport vehicles, ships. Salcavi offers LS0H cables compliant to IMQ – HAR, BS EN 50525, EN 50363-7 and 8, cULUS approval; DIN VDE O245 and 0812, LiHCH, IEC 60332-1-2, IEC 60332-3-24 Specific products offer performance for outdoor use or demanding conditions, high temperature resistance (up to 155°C operating temperature) or high-flexibility at low operating temperatures.

Salcavi Industrie, Italy www.ls0h-halogenfree-cables.com



Performance FR PA66 for automobiles and electronics

Ascend Performance Materials latest flame retardant polyamide 66 compounds. Vydne® ECO315 are unfilled, PIN flame retardant, high flow grade, lubricated for machine feed and easy mold release to improve and accelerate processing. PIN flame retardants enable non corrosivity in injection molding. UL94 V-0 fire performance is achieved at 0.4mm, and also conformity to Hot Wire Ignition HWI UL 746 and Glow Wire Test IEC 60695-2-12 and 60695-2-13. A new performance grade for electronics applications offers PIN flame retardancy combined with best-in-class RTI (Relative Temperature Index).

“Ascend Performance Materials to Exhibit PA66 Material Innovations at Plastics-In-Motion 2016” [9 May 2016](#) and Technical [data](#)



Five die in Paris St Denis flats fire

Five people died, including a mother and three children, and eleven were injured in a fire in a Paris suburb (Saint Denis) 17-flat building, dating from the 1930's, on 6th June. The fire is said to have started on the third floor, possibly in a kitchen, and then spread through the stair well. Media reports suggest that the building was not well maintained and did not respect safety obligations, again tragically demonstrating the importance of fire safety standards and their application.

Saint Denis fire [6th June 2016](#) *Le Parisien* "Saint-Denis : cinq morts et deux blessés graves dans l'incendie d'un immeuble"



LAPP HITRONIC®FIRE LSZH security cable

Lapp, a leading cable manufacturer with 17 production sites worldwide, has launched the HITRONIC®FIRE range of security cables. The cables are PIN flame retardant (IEC 60332-3) with LSZH (low smoke density IEC 61034-1/2 zero halogen IEC 60754-1) inner and outer sheaths. They are armoured with corrugated steel tape and offer resistance to heat, water (lateral and longitudinally watertight), oil and gas, UV, rodents and mechanical stress, and are particularly adapted for use in industrial machinery and plant engineering. The cables can offer up to 3 hours fire-resistance which ensures that the fibres can still transmit in the event of fire. The gel-filled loose inner section can take up to 24 glass optical fibres.

HITRONIC®FIRE Lapp Group Products <http://products.lappgroup.com>



Other News

Flame retardants in tents: tests using 15 new US backpacking tents (3 identical tents x 5 brands) analysed 3 FRs in air in the tents (5 days) and 4 FRs on hands of volunteers after tent set-up. The FRs were not detected in air in nearly half of cases in the air with levels of ng or µg per m³. Levels on hand wipes were mostly higher on hand wipes after tent set-up than before – including for a tent where the FR was not detected in the tent material. All tents were compliant with the US tent flammability standard CPAI-84 so that the presence of FRs is to be expected. There are no indications as to whether such levels of FRs have health risk relevance.

"Characterizing Flame Retardant Applications and Potential Human Exposure in Backpacking Tents", Gomes et al., Duke University, North Carolina, Environmental Science & Technology 2014 <https://dx.doi.org/10.1021/acs.est.6b00923> FRs tested on hands / air: TPHP, TCIPP, TDCIPP, TCEP

EU DecaBDE restriction proposal: the European Commission has published a draft regulation to effectively ban (after 18 months) the production, use or sale of articles containing Deca-BDE, with exceptions for aircraft, vehicle spare parts and electronics (for electronics Deca-BDE is already restricted by the RoHS Directive). The Commission states that this anticipates the expected listing of Deca-BDE under the Stockholm Convention as a POP (Persistent Organic Pollutant), see pinfa Newsletter n°50. The proposal now goes to consideration of Member States and the European Parliament.

Draft Commission Regulation amending Annex XVII to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) as regards bis(pentabromophenyl)ether (5 pages + Annex 2 pages, in English) Reference: [G/TBT/NEU/375](#)

	<p>Boston City, Massachusetts: Boston City Council has modified the city's Fire Prevention Code. From 1st July 2016, upholstered furniture in public buildings (assembly rooms, institutions, educational, residential) will continue to have to comply with Cal TB 133 if the building is not fully installed with sprinklers, but only TB 117 in fully sprinklered buildings.</p> <p>http://www.crcfire.com/blog/code-compliance/boston-fire-prevention-code-update-cal-tb-133-furniture-no-longer-required-in-sprinklered-assembly-spaces</p>
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Publisher information:

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For abbreviations see: www.pinfa.org