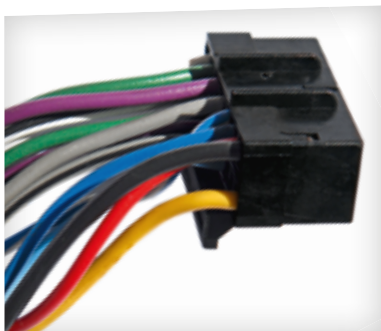


Flame-retardant masterbatches

for plastics that have
to withstand fire



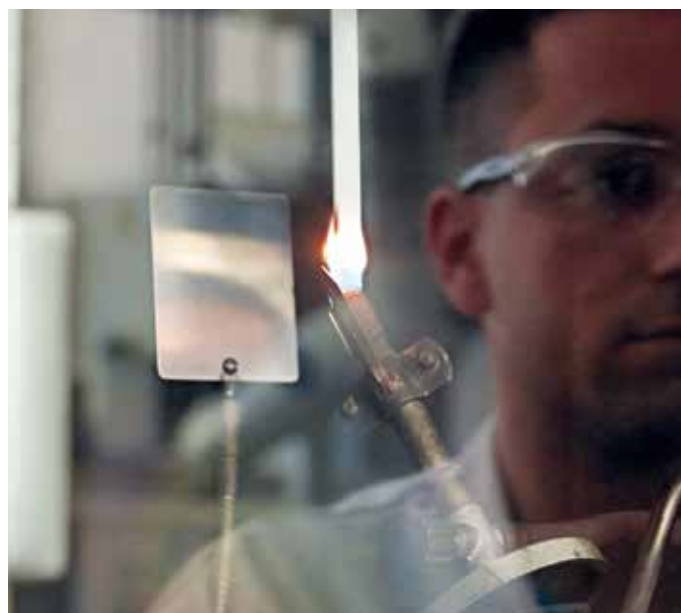
LUVOBATCH® fire protection – keeping a cool head for heat protection

Wherever the heat is on, effective flame retardation is a necessity: in fields such as electronic and electrical engineering, construction and transport as well as in the textile sector and in many applications using films or sheets, flame-retardant additives are needed in plastics processing to comply with national and international flammability regulations such as UL94, DIN EN 13501 or BS 6853.

The large number of available additives with their different properties and interactions with polymers demand a high degree of expertise in order to achieve the optimum flame-resistant finish for the plastic components. Our team supplies the experience gained from many years of developing and producing flame-retardant masterbatches and compounds together with expert advice on the best solution for your application.

Typical flame retardants	
Halogenated	organic bromine compounds, chlorinated compounds
Halogen-free	Mineral-based flame-retardant additives (aluminium trihydrate, magnesium hydroxide), organic phosphorus compounds, nitrogen-based flame-retardant additives

You can obtain our LUVOBATCH® products for flame protection in granulate form, which guarantees reliable metering and good dispersion while eliminating dust.



Flammability test (UL94) in the LuV laboratory: a sample of material without flame retardation (left) compared with halogen-free flame retardation (right).

The products named in this brochure reflect only a fraction of our portfolio.
We specialize in products that meet your requirements.

Halogenated LUVOBATCH® FR products

Halogenated flame retardants act in the gaseous phase by interrupting the radical reaction mechanism. The energy-rich H- and OH-radicals produced in the event of a fire are neutralized and thus are made unavailable for further reactions. Brominated flame-retardants are the most effective in terms of performance and costs and can be used for a broad variety of applications. Their high level of efficacy and relatively low addition rate means that the properties of the polymers with this flame-resistant finish are less adversely affected than in other systems.

LUVOBATCH®	Density g/cm ³	Bulk density g/l	Recommended dosing	Flammability standard	Applications
PE FR 1150	2.0	1,150	4 – 15%	DIN 4102 B2 and B1 UL94 V2, DIN 75200	films, foams
EVA FR 1106	2.3	1,200	8 – 10%	DIN 4102 B2	tubes
PP FR 6142	1.2	600	10 – 12%	DIN 4102 B1	films
PE FR 4775	2.0	1,100	6 – 15%	DIN 4102 B2 and B1	injection moulding
UC FR 7525	2.2	1,200	20 – 25%	UL94 V0	sustainable, environmentally friendly
PE FR 0326	2.1	1,000	12 – 15%	UL94 V2	without Sb ₂ O ₃
PP FR 0234	1	550	5 – 7.5%	UL94 V2	without Sb ₂ O ₃

Halogen-free LUVOBATCH® FR products

In some industries the use of halogenated flame retardants is not desired or is prohibited. In such cases, we offer alternatives using mineral-based flame retardants as well as other halogen-free products on the basis of phosphorus or nitrogen. These flame retardants act through a variety of mechanisms, which may be chemical or physical. Hence, the active substances may, for example, either cool, dilute or form a protective layer. Generally, the quantity of active substance required is significantly higher than in comparable systems based on bromine.

LUVOBATCH®	Density g/cm ³	Bulk density g/l	Recommended dosing	Flammability standard	Applications
PE FR 0289	1.2	550	10 – 12%	DIN 4102 B2	films, foams
PE FR 0298	1.1	600	5 – 8%	DIN 4102 B2	films, foams
PE FR 4011	< 1.0	500	1.5 – 5.0%	DIN 4102 B2	fibres
PA FR 0014	1.25	750	10 – 12%	UL94 V0	injection moulding PA6
PA FR 0266	1.3	750	20 – 25%	UL94 V0	extrusion, injection moulding PA12

Compounds with and without halogens

Some fire safety requirements such as UL94 V0 are very difficult to achieve by the use of masterbatches. For this reason, we offer ready-to-use compounds based on halogenated and halogen-free flame retardants to meet these demanding applications.

LUVOGARD®	Density g/cm ³	Melt index (MVR) (cm ³ /10min)	Flammability standard
COM PP8 SB	1.4	7 (230 °C/5 kg)	halogenated UL94 V0
COM PP 50 HF	1.1	6 (230 °C/2.16 kg)	halogen-free UL94 V0
COM PP 54 HF	1.1	4 (230 °C/2.16 kg)	halogen-free UL94 V0

Your benefits::

- no metering
- high product reliability
- easy handling

Possible drawbacks:

- lower flexibility in use
- possibly higher costs



Contact us:

LUVOBATCH®

Lehmann&Voss&Co. KG

Hamburg-Wandsbek (plant)

Schimmelmannstrasse 103

22043 Hamburg

Tel: +49 / 40 / 44197 – 247

Fax: +49 / 40 / 44197 – 614

E-mail: luvobatch@lehvoss.de