



**Luvogard
HF P 70
Flame Retardant**



LUVOGARD HF P70 a Flame Retardant for Composites

In many areas we cannot manage without them, even if they often remain invisible for us in everyday life. With the use of flame retardants, for instance, in electrical engineering, the building industry and public transportation, our environment has become significantly safer.

To ensure and improve our safety, products must be subjected to the respectively applicable standards and test methods. A flame retardant system adapted to materials and applications is needed to meet these requirements and take the most recent findings into account. Based on our long-standing experience and technical know-how in the field of flame retardants, we can offer products for your applications in many different areas.

LUVOGARD HF P70 is a clear, liquid, halogen free flame retardant additive for thermosetting resin applications. It exhibits the unique property of extremely low water solubility that allows for excellent outdoor weatherability. It does not decompose to halogenated products, nor does it emit irritating smoke or odors upon decomposition. LUVOGARD HF P70 also exhibits unique synergistic properties when combined with other flame-retardants.

Fire tests at LEHVOSS

For the purpose of internal testing in its own technical centre and laboratory, LEHVOSS can rely on a selection of fire tests. Consequently, the success of a product development can be checked in examples of formulations or the influence of other raw materials on the fire behaviour can be tested. With reference to the different standards, the following tests are available:

- Vertical fire test: UL94 (IEC/DIN EN 60695-11-10)
- Oxygen index: LOI (Limiting Oxygen Index, DIN EN ISO 4589-2)

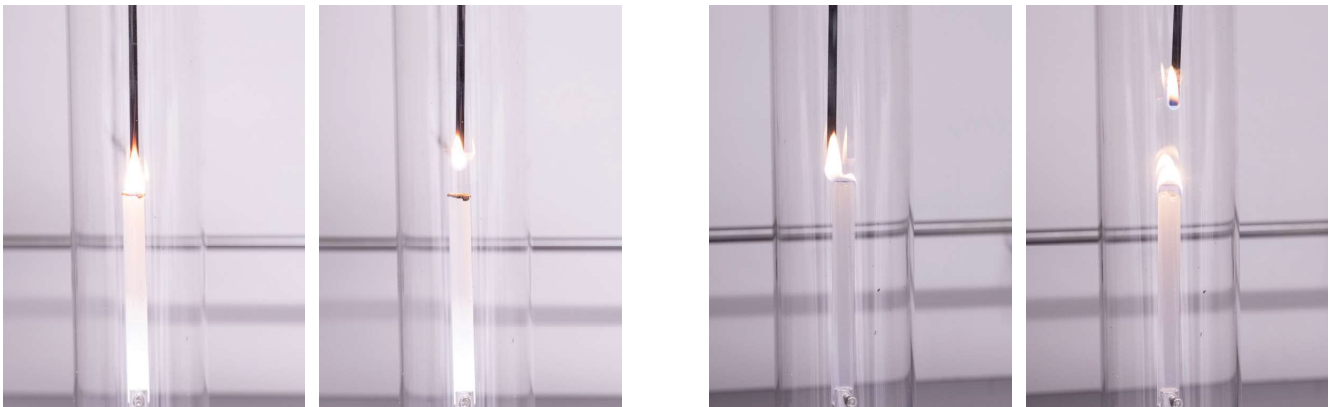
Vertical fire test: UL94 (IEC/DIN EN 60695-11-10)

- The test includes test bars with a thickness of 1.6 mm and 3.2 mm in a vertical set-up
- Classification according to fire behaviour (burning time, possibly burning drips) from non-classified / V2/ V1/ V0 UL94 test of a plastic with flame retardant (left) and a plastic without flame retardant (right) during flame impingement and after removal of the burner.



Oxygen index: LOI (Limiting Oxygen Index, ISO 4589-2)

- Test bars with a thickness of 1.6 mm are tested in an air / oxygen mixture with variable O₂ content
- LOI value corresponds to the oxygen content in the mixture, which is required for the material to continue to burn after the removal of the source of ignition. LOI test of a plastic with flame retardant (left) and a plastic without flame retardant (right) during flame impingement and after removal of the burner.



Technical Data of LUVOGARD HF P70:

Technical Data:			
	Unit	Value	Method
Phosphorous	%	17 -20	calculated
Solids	%	100	
Viscosity (25° C)	mPa s	250	DIN 53019
Density (25° C)	g/ml	1.22	DIN EN ISO 1183-3
Moisture	%	max. 0.08	Karl Fisher

How do flame retardants work?

Flame retardant systems influence a smouldering or developing fire through different physical and / or chemical mechanisms of action. You can, for instance, reduce the fire load, i.e. the proportion of flammable materials in a product. Some form a protective layer which prevents heat, material and gas exchange so that the fire is deprived of its 'fuelling'.

Flame retardants are used with the objective of preventing and / or delaying the fire event and hence improve the possibilities of firefighting and evacuation.

What is used as a flame retardant?

Since the term "flame retardant" is defined through the mechanism of action in connection with a fire event, many different material classes are hidden behind it.

They are selected individually to adapt them to the requirements of the respective end products, applications and regulations to be complied with.

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