



**Make more
out of plastics**

Flame Retardants

Brochure

Flame Retardants

We enhance the performance of polymers

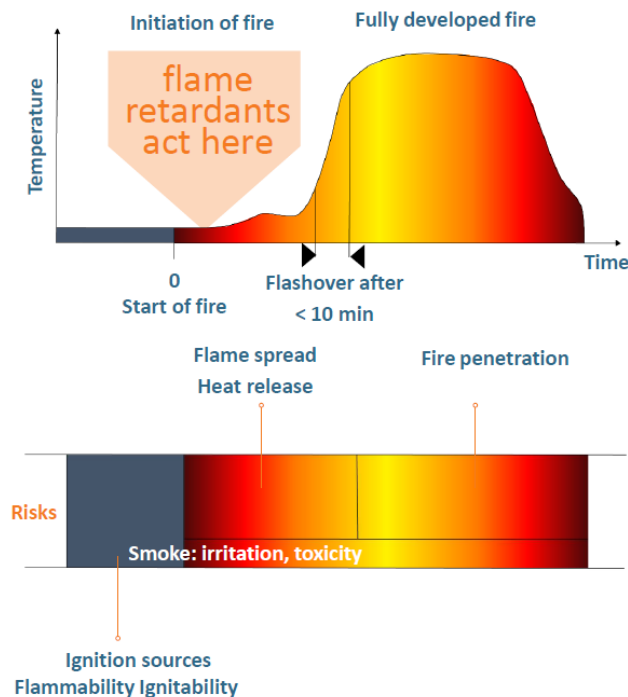
In Europe, there are thousands of fires every day, causing nearly 4000 deaths per year, and estimated economic cost of more than €126 billion. There can be several causes, such as faulty or improperly used electrical installations, careless behaviors, defective appliances and batteries.

Why a flame retardant?

In our modern living environment, we are surrounded by flammable materials but thanks to flame retardant technologies these materials pass the high fire safety requirements needed to be safe in use.

These flame retardant chemicals are predominantly utilized in sectors such as construction, electrical and electronics, wire and cable, automotive and transportation and textiles. As the use of plastics in these industries continues to rise, the need for flame retardants become crucial.

Flame retardants reduce the risk of ignition and fire spread of many plastic and textile materials which critically results in more valuable escape time for occupants. Time to flashover can be increased from 5 minutes to 15 minutes which can make the difference between escape and fatalities.



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Different flame retardants technologies can be used for plastics and ADEKA has developed technologies and products based on Phosphorus chemistry, aiming to offer safer and more sustainable flame retardants.

Flame Retardants

Our product range

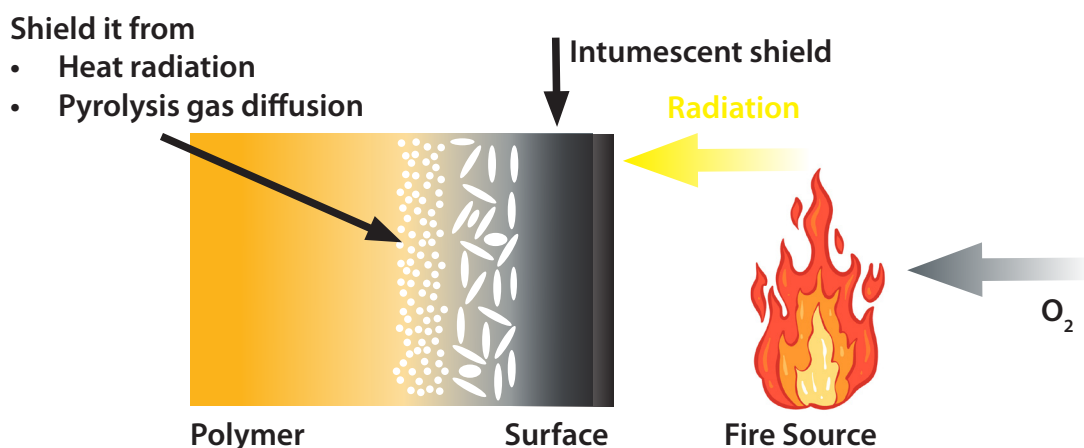
ADEKA offers a variety of halogen free flame retardant solutions:

- **ADK STAB FP-2000 series** - halogen free intumescent flame retardant, particularly suitable for polyolefin based materials.
- **ADK STAB FT-80** - alkoxyamine-type halogen-free flame retardant for polyolefins.
- **ADK STAB FP-600S** - high molecular weight liquid phosphate ester designed for engineering materials.

Product reference	Resin field application	Typical End User product	Additional features
ADK STAB FP-2500S	Polyolefins and glass fiber reinforced PO.	Injected parts for transportation, Electric & Electronic, Wire & Cable, Building & Construction.	High performance grade. Synergistic effect with glass fiber.
ADK STAB FP-2100JC	Polyolefins and glass fiber reinforced PO.	Injected parts for transportation, Electric & Electronic, Wire & Cable, Building & Construction.	High thermal stability.
ADK STAB FT-80	Polyolefins	Films and fibers	Preserves the translucence
ADK STAB FP-600S	Polycarbonate, alloy of polycarbonate and ABS, sealants	Injected parts for transportation, Electric & Electronic, Building & Construction.	Minor influence on mechanical properties

ADK STAB FP-2000 series

ADK STAB FP-2000 series are phosphorus/nitrogen based intumescent flame retardant systems proven to be highly efficient in polyolefins and polyolefin copolymers. When exposed to the fire source, the parts containing FP-2000 series form a thick insulating char layer, often referred to as the intumescent shield. This shield prevents heat and oxygen from reaching the polymer and slows down ignition and spread of the fire.



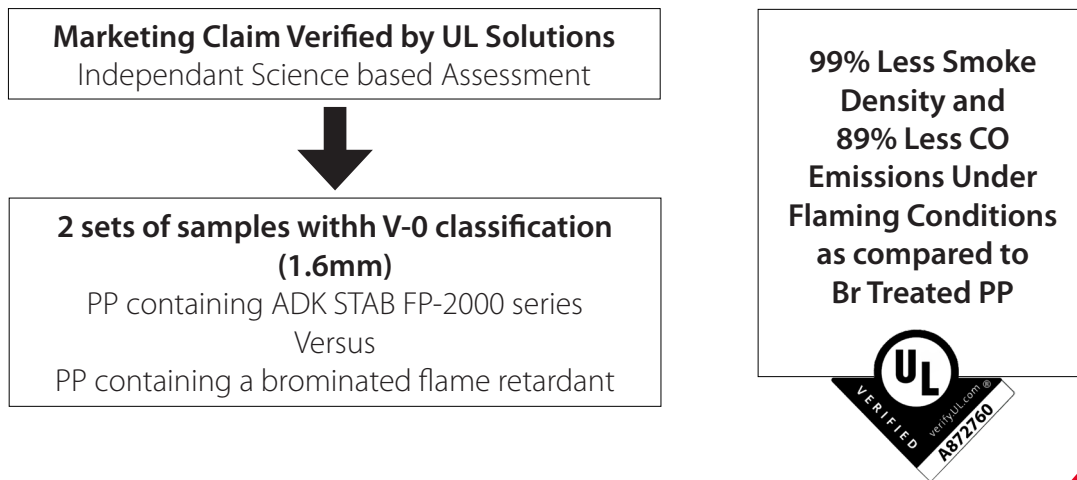
ADK STAB FP-2000 series can be easily processed and offer long term efficiency to the flame retarded parts, also in outdoor applications.

Flame Retardants

Key Benefits

- High performance flame retardant for UL94-V0 and 5VA classification,
- Suppresses heat release,
- Delays and reduces fire propagation,
- Low smoke emission and low smoke toxicity during a fire,
- Has proven long term efficiency in virgin and recycled polyolefins,
- Easily processed,
- No interference or reduction in efficiency of UV stabilizers.

ADK STAB FP-2000 series is the first and only UL Verified Mark as functional material



Case study

ADK STAB FP-2500S

Casing for electric vehicles battery modules

ADK STAB FP-2500S has high thermal stability and can withstand the severe conditions of the compounding process of PP with Glass Fibers. ADK STAB FP-2500S and glass fiber works as synergists in PP to reach UL-94 V0 rating and makes it suitable for use in EV-batteries.



Flame Retardants

ADK STAB FP-T80

Thin plastics parts require different flame retardant technologies which are typically used at low loading to preserve the integrity of films or sheets.

ADK STAB FP-T80, based on NO-Alkyl chemistry, is a liquid flame retardant with proven high flame retardant performance at very low loading (0.5-1.0%) and good processability in polyolefin films and fibres. ADK STAB FP-T80 acts as a radical scavenger in the gas phase during combustion and prevents fire spread as well as reducing dripping .

Key Benefits

- Substantially suppresses the rate of flame spread,
- Demonstrates high efficiency in films/sheets, enabling films of 200µm thickness to achieve UL94-VTM2 or DIN 4102 B2,
- Preserves the translucence of polyolefin films,
- Provides additional heat and light stability to the film.

ADK STAB FP-600S

Engineering materials are used for the manufacture of electronic equipment and some parts have to be flame retarded to minimize fire risks.

ADK STAB FP-600S is widely used in PC and PC/ABS alloys in applications such as electronics, computers, TV screens requiring UL-94 V0 flame retardant performance. ADK STAB FP-600S is also recommended for use in sealants.

Key Benefits

- Offers high thermal stability and can withstand the high temperatures required for processing engineering plastics,
- Improves flow characteristics due to a concomitant plasticizing effect,
- Minor influence on mechanical properties.

Case study

ADK STAB FP-600S, added at 15% in combination with 0,3% PTFE enables PC/ABS alloy to reach UL-94 V0 and to fulfil the flame retardancy requirements for structural parts of TV screen.



Further Information

ADEKA sales and distribution are coordinated through an extensive worldwide network of technical and commercial experts.

For further information or guidance please contact us: contact@adeka-pa.eu

ADEKA your strategic partner

Our technologies are used by leading companies in a wide variety of markets and our portfolio opens endless opportunities for a large range of applications.

Fibers and tapes

Our light stabilizers and high end phosphites bring protection from discoloration and thermal degradation for fibers, tapes and flooring.

Appliance and household goods

Whilst our antioxidants provide long-term stability to household goods, our light stabilizers improve their visual appearance and lifetime.

Automotive

Our range of high performance nucleating agents guarantee increased productivity and higher mechanical properties.

Building, construction and furniture

Longevity is extended and aesthetics are maintained by the use of our plastic additives in applications such as furniture, roofing, W&C and pipes as well as floorings.

Electric and electronics

Our flame-retardants cover a broad application spectrum ranging from polyolefin to engineering plastics. By being halogen-free FR, they follow the present trend to substitute their halogenated predecessors for a more sustainable future.

Packaging

Our permanent antistatic agents are largely food approved according to various global regulations.



ADEKA Polymer Additives

Our polymer additives division is a major chemical player addressing the challenges of the worldwide plastics industry for more than 50 years. As a part of ADEKA Group, ADEKA Polymer Additives Europe offers an extensive range of polymer additives throughout Europe, former CIS countries and Africa.

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