



Dr. Adrian Beard  
Chairman

pinfa is open to all companies producing or using PIN flame retardants, as well as organisations working in related areas

Dear Readers

Motivating and exciting are two words that I would use to describe my experience with pinfa since its launch in 2009. The pinfa members share a close common understanding and a willingness to work together to improve fire safety in synergy with quality of environment, human health and product application performance. This common commitment means pinfa is really able to move forward and to get things done.

pinfa is also innovative in the way we operate: listen to stakeholders' and users' concerns, provide objective information, involve downstream industries and other companies, develop international links. pinfa is increasingly recognised as a platform for open-minded dialogue on flame retardants for all relevant parties, including industry, public bodies, NGOs, science institutes and laboratories.

The member companies of pinfa represent a wide diversity of different PIN chemistries and flame retardant mechanisms, but also a range of companies of different sizes and nationalities, including flame retardant producers, formulators and users. This gives pinfa a diversified perspective on the overall picture of flame retardant chemicals and future trends. If your company is interested in developments in flame retardants, you are welcome to get involved.

Yours

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## Our Members



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pinfa works in close cooperation with its sister association pinfa North America, located in USA.  
[www.pinfa-na.org](http://www.pinfa-na.org)

## Our Newsletter

Our monthly newsletter brings you the latest on fire safety, PIN flame retardants, new developments and applications, health and environment.

**Subscribe on our website**  
[www.pinfa.org](http://www.pinfa.org)

## Welcome to pinfa

**We are a group of global flame retardant manufacturers and users committed to fire safety and to improving the health and environmental profiles of our products.**



pinfa is the Phosphorus, Inorganic and Nitrogen Flame Retardants Association. pinfa represents manufacturers and users of non-halogenated phosphorus, inorganic and nitrogen flame retardants (PIN FRs). It is a Sector Group within Cefic, the European Chemical Industry Council.

## What we strive for

The members of pinfa share the common vision of continuously improving the environmental and health profile of their flame retardant products. This vision is coupled with a commitment to maintain high fire safety standards across the world, standards which minimize the risk of fire to the general public.



### Fire Safety

Phosphorus, Inorganic and Nitrogen (PIN) flame retardants protect people from death and injury in fire. They are used to improve the fire safety of materials and to meet safety standards in consumer goods, buildings, transport and industry.



### Environment and Human Health

PIN flame retardants are non-halogenated. Our goal is to limit risks to human health and the environment in the production, use and end-of-life of fire-safe products.



### Commitment to Collaboration

pinfa works in partnership with stakeholders (NGOs, environmental, consumer associations, scientists, regulators, fire safety experts, user industries...) to ensure safe use of flame retardant products.

## What are non-halogenated PIN Flame Retardants?

PIN flame retardants solutions are based on PIN compounds: P = Phosphorus, I = Inorganic and N = Nitrogen and do not contain halogens (bromine, chlorine). A wide range of different products, often used in combination, enable specific technical and fire safety performance for a wide range of materials and applications. The toolbox of varied non-halogenated chemistries is developing rapidly in response to user demand for environmentally safe, cost-effective and reliable fire safety.

## Flame retardants are essential for the safety of many products around us.

The 3 phases of fire and the protecting features of flame retardants:



### Ignition source

- Prevent ignition
- Possibly self-extinguish



### Flame spread

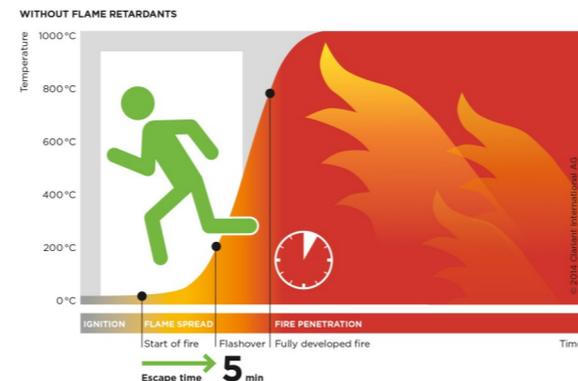
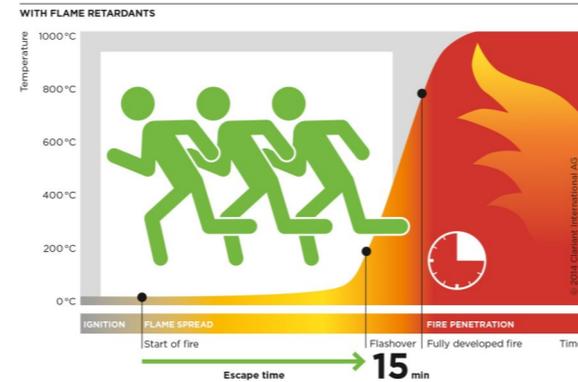
- low down flame spread
- Reduce heat release
- Delay flash-over



### Fire penetration

- Prevent the collapse of structures, e. g. steel columns protected by intumescent coatings
- Prevent fire moving to adjacent room or building compartment

### How flame retardants can increase escape time in fires



Flame retardants reduce the risk of ignition and fire spread of many plastic and textile materials which results in more available escape time for occupants. Time to flashover can increase from 5 minutes to 15 minutes which can make the difference between escape and fatalities. Bear in mind that the escape time includes the time to discover the fire, alert other people, take the decision to call the fire brigade, take own actions to extinguish or take the decision to evacuate the building. The times and temperatures in the graphs are typical numbers, but can vary according to the circumstances and materials involved.

## Where are PIN flame retardants used?

Electric & Electronic Equipment

Building & Construction

Transport

Furniture & Textiles



The pinfa Product Selector provides a first indication of appropriate PIN flame retardants for different applications.

## Our commitment

- We build on existing chemical assessment systems, addressing data gaps and improving assessment of exposure
- We accept that Flame Retardants are generally persistent in order to be durably effective, and we are investigating the best ways to manage this while retaining their effectiveness and usefulness
- We accept that Flame Retardants may have acute Hazard Phrases, and we are investigating ways to minimise exposure while ensuring they do their important job
- We consider the full life cycle, including production, disposal, bio-degradation
- We take into account release risk
- We develop appropriate criteria for assessing the safety of inorganic flame retardant components (existing criteria are largely designed for organics)
- We define how to treat areas where information is not available