

Fire Retardant Polymeric Materials – Gala dinner Budapest, Hungary

Dr. Christian Battenberg's speech :

Ladies and Gentlemen, I welcome you to the Gala Dinner in association with pinfa, one of the sponsors of the FRPM21.

I'm Christian Battenberg, and as you already heard during my presentation, I completed my PhD in the working group of Professor Döring at Fraunhofer LBF and am now working for Clariant since several years.

I pass on greetings from the chairman of Pinfa, Adrian Beard (Clariant), and vice-chairman Michael Klimes (Nabaltec) who both unfortunately can't attend.

We have already heard some excellent presentations here in Budapest on the topic of fire safety. This is also an important topic for this city, as there have been many fires in its history. For example, the city was burned down in the **battle of Buda, which took place in 1686 (illustration)**, can be seen here. Due to the dense urbanisation and the use of combustible materials such as straw for the roofs, the city burned for several days.

One of many other terrible incidents occurred in **1903 in the Párisi Department Store (illustration)**. The cause of the fire here was more similar to the cause of today's fire: A lamp in the shop window ignited flammable textiles through a malfunction.

If we look at the challenges today, hopefully Budapest is no longer menaced by invading armies, but fire safety challenges have become much more diverse. This is why it is a truly exciting time for fire safety research, as two challenges collide:

- Increasing need for fire safety, with societal drivers such as ageing population and urbanisation, and new technologies such as batteries and connectedness of things
- Sustainability demands for safe chemicals and recycling, hammered into place with the EU Green Deal and new Chemicals Strategy

Sustainability technologies also bring new and demanding fire safety challenges:

- batteries, with specific risks of highly concentrated energy, thermal runaway, toxic smoke and fire extinguishing water
- connectedness of things and ubiquitous electronics, increasingly powerful processors, multiplying potential fire sources
- use of wood and natural fibres. Wooden buildings were banned in London after the Great Fire in 1666 (*see pinfa News 72 and proposed illustration*).
- Increasing use of inherently flammable plastics and composites enabling light-weight, low energy solutions in transport, energy, communications
- Green Buildings, with reduced ventilation, insulation materials ...

At the same time as developing new solutions to address these challenges, fire safety must respond to society's demand for safe and sustainable chemicals: non-toxic to health, non-toxic and non bioaccumulative in the environment, recyclable, no toxic emissions in production or processing, low smoke toxicity in case of fire.

In Europe, this is made reality by the **Green Deal** (*illustration*) and the **new EU Chemicals Strategy** (October 2020) (*illustration*). This has the full political support of Member States and the European Parliament, underpinned by surveys which show that 90% of the public are worried about the environmental impacts of chemicals, and 84% about health impacts. The Commission's aim is that the EU becomes the world benchmark for safe and sustainable chemicals.

The **Chemicals Strategy** (*see pinfa News 119*) sets the concept of "Essential Use" which will ban the most hazardous families of chemicals except in applications which are necessary for society and for which alternatives are not possible. It sets the aim that chemicals should be "Sustainable and Safe by Design", with the aim of harmonising sustainability assessments.

pinfa is fully in line with these objectives. We believe flame retardants are an essential part of the response to tomorrow's societal fire safety challenges, alongside passive fire safety, fire safety engineering, public education. How can wood and timber be fire safe without flame retardants? Or batteries? Or electronics? Or natural fibre insulation, or insulation made of end-of-life textiles?

pinfa believes that PIN flame retardants, without halogens, are essential to ensure low toxicity for health and the environment, low smoke, and to avoid possible emissions in processing or recycling.

We also need the support of research, to develop new PIN FR solutions for new materials and new applications, whilst at the same time verifying that the proposed new molecules are as safe as possible. We increasingly now see, and we welcome, research groups assessing potential health and environmental properties of proposed new FR molecules in parallel to testing their fire performance, polymer compatibility and production feasibility.

Research is also needed on recycling of flame retardants and of flame retarded materials.

And we need to continue to develop PIN FRs and synergists which can reduce smoke emission and smoke toxicity.

pinfa is open to engage with research to discuss R&D directions and needs or to collaborate in new projects. The EU Chemicals Strategy includes objectives of defining a "research and innovation agenda for chemicals" and investing in chemicals innovation to make the EU a leader in chemicals sustainability worldwide. Together, lets make fire safety part of this.

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Global Segment Manager Thermosets, BU Additives, BL Flame Retardants
Clariant Plastics & Coatings (Deutschland) GmbH