

PINFA ADVISORY BOARD - THIRD MEETING
WEDNESDAY, 30TH MAY 2018, 10:00 – 16:30 CET
BRUSSELS

**The content of this report is a capture of the inputs from individual participants.
The views included are therefore those of individual participants, and not the
consensus of the group as a whole.**

1. Participants

External participants

- **Gwenole Cozigou** *Director for Industrial Transformation and Advanced Value Chains, DG GROW - Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs, European Commission (afternoon session)*
- **Doreen Fedrigo** *Senior Policy Officer, Nanomaterials and Chemicals, European Environmental Citizens Organisation for Standardisation (ECOS)*
- **Stephen Fueller** *Criteria Development and Compliance Manager, TCO Development*
- **Sonja Haider** *Senior Business and Investors Advisor, ChemSec*
- **Sara Højriis** *Technical Advisor, Danish Environmental Protection Agency*
- **Frank Kuebart** *Managing Director, Eco-INITIUT*
- **Pim Leonards** *Professor in Environmental Bioanalytical Chemistry, Vrije Universiteit Amsterdam*
- **Pieter Maes** *Firefighter, VUUR Training & Consultancy (morning session)*
- **Miquel Rejat** *Firefighter, Government of Catalonia Fire Brigade*
- **Monika Sabaranska** *EMEA Supplies Regulatory Compliance Manager, HP*
- **Laurent Tribut** *Plastics Materials Expert, Schneider Electric*
- **Hans Wendschlag** *EMEA Environmental Programme Manager, HP*

pinfa representatives

- **Adrian Beard** *Chairman*
- **Jonathan Crozier** *Secretary General*
- **Vicente Mans** *Advocacy Manager*

External moderators

- **Simon Levitt** *Moderator, Harwood Levitt Consulting*
- **Giacomo Borgo** *Assistant moderator / writer, Harwood Levitt Consulting*

2. Purpose of the pinfa Advisory Board

- pinfa represents the manufacturers of phosphorus, inorganic and nitrogen flame retardants (PIN FRs) and is a Sector Group within Cefic, the European Chemical Industry Council. The members of pinfa share the common vision of continuously improving the environmental and health profile of their FR products.
- In recent years, there has been much discussion and debate around FRs. Concerns have been raised about environmental impacts, largely but not solely about halogenated FRs. In cases where FR use is decreased, there are concerns about fire safety. Where are FRs critical for fire safety, and where can other solutions be sufficient?
- The aim of the Advisory Board meeting is to bring together the group on average twice a year. It is not a fixed group. pinfa will invite additional participants if they are interested to attend.
- The participants will have formal positions in their organisations, but pinfa's intention is for the meeting to be a discussion between the individuals, not a stating of the formal positions of those organisations.

3. The Chatham House Rule

The meetings follow the Chatham House rule, whereby minutes include who attended and what was discussed, but opinions are not attributed to individual participants.

4. Topics raised in previous meetings

In previous meetings, a number of topics were raised informally, some of which could be revisited and explored further. Therefore, at the beginning of this third meeting, there was a recap of topics previously raised:

Fire spread. Are we seeing an increase in the rate of fire spread, is this just anecdotal or limited to certain regions, or are firefighters seeing this more widely? Does this relate to the flammability and increased fire load of consumer products in homes using polymeric materials?

Fire statistics. Previous meetings noted the age-old problem of fire statistics (collected differently in different countries, focussed on ignition source but not what led to flashover). Case studies that should show whether extra regulation helps (e.g. the 1988 U.K. furniture regulations), have led to polarised debate. Should the statistical evidence issue be addressed by this group, or is this not possible within a helpful timeframe?

Fire safety advocacy. Some firefighter representatives are noticing an increased problem of rate of fire development and reduced escape time. Because firefighters are organised differently in and within each country (e.g. professionals, volunteers, military), firefighters have not always had a resourced or unified advocacy voice. Advocacy groups have stepped into this partial vacuum, including industries with a commercial interest, which has limited their credibility. If there is a wider Grenfell type fire safety problem, can there be a unified firefighter voice on this? And to whom should they address their concerns, at national level, EU level or both?

Do FRs do their fire safety job? If there is no consensus on a fact base for fire safety, how can this question be fully answered? How can we move from agreed 'micro' evidence (fire tests, videos etc.) to 'macro' evidence focussed on number of fires, injuries and fatalities, taking also into account what causes fires, and fire behaviour?

Smoke toxicity. Is smoke toxicity causing a health issue for firefighters chronically, over the time of their careers and afterwards? If yes, what can be done about this? How major a factor is the smoke generated by polymeric materials? Do FRs reduce the problem by reducing the number and / or size of fires? Do they exacerbate the problem because of added smoke volume or toxicity?

Environment and human health profile for FRs. If companies are planning to move away from halogenated FRs, what gives them confidence in the alternatives? How do they avoid regrettable substitution? If REACH doesn't (yet) give sufficient confidence to user companies, what can provide this confidence? Several studies have given positive reviews to some alternatives (not all), but these are piecemeal, difficult to find and interpret, and will face opposition given the negative perception of FRs. What information on FRs could be sufficiently holistic and robust? Can pinfa play a role in providing information in one place?

Positive lists of FRs. TCO in Sweden has published a positive list of fourteen PIN FRs. GreenScreen has given high scores to a number of FRs. Is it possible to increase momentum around positive lists?

Circular economy. As this topic moves from philosophy to concrete policies, what will this mean for plastic additives such as FRs? What will happen around product design and at end of life? What should happen to products currently in circulation? How can circular economy goals and fire safety both be achieved for polymeric materials? What practical questions and actions does this raise for pinfa?

Swedish FR tax. Sweden has created a tax on FRs, as a revenue raising measure and a way to implement chemical policy without deferring to Brussels. Such tax creates the precedent of a patchwork of signals to the supply chain, further complicating choices about substitution. What practical action can be taken?

Other questions raised in previous meetings. How well are the hazard profiles known of each of the PIN FRs? Is there any industry mechanism for making FR (eco)tox information available publicly? What is the balance between damage from exposure (human health and environment) versus fire safety – does this consistently pit fire safety against non-use of FRs? How to address immediate 'benefits' versus longer-term (potential) harm and epigenetic effects?

The subsequent discussions of the group covered many of these topics and gave opinions which are covered in the report sections below.

5. Fire safety and the contribution of FRs

According to the firefighters present at the meeting, the firefighter community is noticing a change in fire behaviour

There was a discussion on fire safety between firefighters and other experts in the group. The view of some participants at previous meetings was repeated: flashover is happening today within four minutes, a shorter time period than in the past.

According to one firefighter, if a fire does not reach the point of a flashover, it almost always becomes an under-ventilated fire enclosed in a compartment. In such an environment, toxic smoke production is rapid, which reduces visibility and can lead to injuries and fatalities due to

smoke inhalation. This has a considerable impact on the strategies and tactics that firefighters need to apply. According to one firefighter, there is a need to train firefighters to fight smaller fires hidden behind thick walls of hot flammable toxic smoke.

The same firefighter raised that the change in the type of fires is connected, amongst others, to the use of modern, polymeric materials in consumer products. There is evidence from fire tests comparing modern rooms to legacy rooms, that smoke develops very rapidly in modern rooms. Because of modern materials, there is already pyrolysis not at 600 °C but as low as 100 °C. This results in a snowball effect. The radiating heat from the fire starts pyrolysis, and eventually lead to a fast spread of the fire through flammable fumes.

There is also the problem of a single compartment fire becoming a multi-compartment fire. Fire can travel with and through the hot smoke and ignite furniture and products in the next compartment. If maintaining a fire to a single compartment is key, insulation materials and other building materials are not always stopping the spread of fires. For example, polymeric window frames are not always working to prevent fire spread sufficiently. This is a source of major concern for firefighters, and was probably a major issue in the Grenfell fire, where it is thought fire load was way more important within the insulation layer than in the cladding.

Another issue concerns fire safety standards, which according to some participants are focusing too much on individual products (e.g. insulation materials), without taking into account the complexities of a domestic environment. Similarly, testing methods do not calculate the fire load actually present in a building, but only provide insights on lab-linked fire behaviour of individual products.

Overall, there is a concern that the fire safety problem will get worse because of demographics. The Dutch Safety Board has modelled that by 2030 there will be a 20% increase in fire fatalities because of an ageing population and consequent reduced mobility, so escape time in houses becomes even more important.

Currently there is a disconnect between firefighters witnessing these problems on the ground, industry, and policy-makers and standards setters.

pinfa will discuss the issue bilaterally with Pieter Maes and other fire-fighters, to take this forward more quickly. pinfa, Pieter and others will also discuss how much this issue can be raised by a wider voice of firefighters to policy-makers.

We are approaching the next generation of European Commission funding. Perhaps there is an opportunity to apply for funding to focus in on this issue, if the correct funding frame can be found. pinfa could help co-ordinate a white paper or similar document explaining the fire safety concerns above on modern materials, consumer product fire load, smoke development and escape time, and raising the topic with the European Commission for possible funding. One approach could be to examine the concern that such fires could happen again in high-density-low-income housing, where people are densely concentrated like in public buildings, but with much lower private dwelling safety standards.

The problem was again noted that there is a lack of capacity to advocate these fire safety concerns, and there is a lack of a central policy-making unit at EU level or in many countries. Fire safety falls between different departments and this is why there is not better connection of

firefighter testimony, statistics and solutions to fire safety. Is it a medium-term solution to have a European fire safety agency, like the agencies that exist in other policy fields?

6. Smoke toxicity

Fire-fighters continue to worry about the potential long-term effects of being exposed to smoke

Fire-fighters and others raised the issue of smoke toxicity as in previous meetings. Fire-fighters are still concerned they do not know what they are being exposed to, and the long-term effects both of individual gases, and the cocktail effect of combinations of gases. Is it possible to measure which gases and smoke are produced in fire scenarios of different materials?

pinfa presented that since the last meeting of the Advisory Board, they have commissioned scientific work on the smoke formation and toxicity of materials with flame retardants. Over 100 samples have been collected for testing, of materials with non-halogenated FRs, benchmarked against materials with brominated and chlorinated FRs, and base materials without FRs. A range of tests will be conducted to understand smoke volume and composition.

The results are expected after summer 2018, so pinfa will present results for discussion at the Advisory Board meeting envisaged for December 2018 (pending the approval by the respective member companies).

7. Environmental and human health profile of FRs

The issue remains: what can pinfa do to provide more public information on the environmental and human health profiles of their products? What can get people to trust FRs when the science says certain FRs are ok?

Some in the room believed that REACH would eventually be very helpful legislation, in terms of helping substitution of undesirable chemicals and ensuring trust in those which remain. The current issue is a time gap while REACH phases are ongoing, meaning initiatives sprung up like the Swedish tax issue below. Others thought that REACH would never provide all the answers or reassurance.

The participants noted how helpful GreenScreen can be, and one participant suggested that all pinfa members greenscreen at least one of their products, and ideally all of their products. One OEM is now telling its suppliers to only use chemicals which score 2 or higher on GreenScreen. It may be that this trend increases.

Some of the participants again welcomed the [TCO positive list of FRs](#). Initial discussions to encourage other ecolabels to follow this example, as suggested at the previous meeting, have not led to any results yet, but a small group will continue the effort.

An initiative of ChemSec was discussed. Traditionally, ChemSec has focused on chemicals to be substituted e.g. the SIN list. But more recently they have launched a project, [Marketplace](#), that focuses on listing chemicals that can be acceptable substitutes, i.e. a positive list. ChemSec said that many companies have been contacted across industry, but initial response has been slow. ChemSec encouraged pinfa members and others to participate in the Marketplace initiative.

Previous meetings had suggested pinfa can play a role in providing information on FRs. The members of the pinfa group gave an update. They believe that to publish the information on the pinfa website only will not provide the necessary trust that it is independent. The idea is for pinfa to encourage member companies to create or add to Wikipedia entries for FRs they produce. As this would be editable and then possibly edited by others, it would be trusted more.

pinfa will encourage members to include certain types of information in entries, including information on applications and use, and information on independent reviews of environment and human health profiles e.g. GreenScreen scores, Enfiro results, results of German or Danish regulatory studies, etc.

The group welcomed this as an excellent initiative and a brave approach. pinfa hopes that some content will be on Wikipedia to share ahead of the next Advisory Board meeting.

8. Swedish tax

There was an update on the Swedish tax on electric and electronic equipment based on the FRs used. The tax has been in effect since mid-2017 and applies to all FRs. There is a reduction in the tax if products avoid brominated and chlorinated FRs, and another reduction for avoiding “additive” phosphorus FRs. The tax is based on the weight of articles and e.g. may increase the price of a computer monitor by approximately 20%.

According to some participants, it is not possible to argue for the tax to be scrapped, but it could be possible for the tax to be amended and based on inherent hazard properties e.g. using Green Screen.

As part of this effort, Apple has completed a report with 58 phosphorus FRs assessed showing that there are indeed also “additive” phosphorus FRs with a good environmental and health profile. Further discussions are expected with the head of the new Swedish Center for Substitution with the [RISE](#) organisation, and it was recommended he be invited to a pinfa Advisory Board meeting.

9. Ideas to move forward

The group was again positive about the discussions. The fact that there were more participants was welcomed, particularly the range of backgrounds and expertise in the room.

The timing of a next meeting should December. pinfa participants indicated they were keen to progress some of the action items suggested to be able to report back on progress at the next meeting.

It was mentioned that ecolabel organisations could be invited to the next meeting, for example a new Blue Angel project on textiles. Also, this type of meeting could be relevant to national regulators. On NGO participations, due to limited capacity, it is difficult for NGOs to attend every meeting. It was agreed to think what could be done about this.

10. 'Car park' of other issues

There were other ideas mentioned in the meeting, which were not developed sufficiently to be written up in this document in full.

This document, once agreed by the participants, can be used by any of the group in discussions with others, to show the areas of discussion and to encourage collaboration on the topics involved.