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# pinfa Advisory Board

## Sixteenth Meeting

Thursday 17 October 2024

09:30 – 12:00 CET

**VIRTUAL**

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**pinfa**

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# pinfa Advisory Board Meeting Participants

## pinfa Representatives

Esther Agyeman-Budu, Sector Group Manager  
Adrian Beard, Chairman

## External moderators

Simon Levitt, Moderator, Harwood Levitt Consulting  
Angus Wallace, Assistant moderator, Harwood Levitt Consulting

# The pinfa Advisory Board Meetings

## Purpose of the pinfa Advisory Board

pinfa is the Phosphorus, Inorganic and Nitrogen Flame Retardants Association; it is a sector Group of Cefic, the European Chemical Industry Council. We represent the manufacturers and downstream users of non-halogenated phosphorus, inorganic and nitrogen flame retardants (PIN FRs).

United by a commitment to improve the environmental, health, and safety profiles of FR products, we seek to foster dialogue between the FR, fire safety and environmental fields. Bringing together a diverse group of stakeholders, including FR manufacturers and downstream users, academics, and experts from testing and research institutes, our Advisory Board meetings provide a venue for engaging with world-leading experts in these areas, and share ideas and activities.

The meetings of the Advisory Board take place on a biannual basis. They do not have fixed participation, and attendees are encouraged to extend the invitation to relevant stakeholders.

This report captures only the content of the Advisory Board meeting held on 17 October 2024. The online library of the previous meeting reports can be found [here](#).

## The 16th pinfa Advisory Board Meeting

The 16th meeting of the pinfa Advisory Board was held virtually on 17 October 2024.

In the first session, **Giulio Bracalente**, Scientific Officer at the European Commission's Joint Research Centre (JRC), delivered a presentation on the state of play of the Safe and Sustainable by Design (SSbD) Framework, a central element of the EU Green Deal and Chemical Strategy for Sustainability.

In the second session, **Eric Guillaume**, General Manager of Efectis France, presented the key findings, responsibilities and recommendations for preventing future disasters from Grenfell Tower Inquiry Phase 2.

Both presentations were followed by an open discussion.

## Competition, compliance and confidentiality

The meetings of the Advisory Board are held in strict compliance with EU and international antitrust laws, as well as Cefic dos and don'ts.

The meetings of the Advisory Board follow the Chatham House Rule, whereby attendance and the contents of the discussions are reported, but the affiliation of each individual speaker is not revealed.



## The state-of-play on the Safe and Sustainable by Design (SSbD) Framework

Giulio Bracalente, Scientific Officer, European Commission, Joint Research Centre

The Safe and Sustainable by Design (SSbD) framework represents a key pillar of the EU's Chemicals Strategy for Sustainability and its broader EU Green Deal goals. Giulio Bracalente, a Scientific Officer at the European Commission's Joint Research Centre (JRC), presented an overview of the SSbD framework, outlining its structure, objectives, and implementation process. With over a decade of experience in chemical risk assessment, he has specialised in bridging Risk Assessment (RA) and Life Cycle Assessment (LCA), Giulio joined the JRC in 2023 to provide expertise on Substances of Concern and the Eco-design for Sustainable Products Regulation (ESPR). The presentation was followed by a group discussion.

### The SSbD framework

The SSbD framework is a voluntary framework that aims to foster innovation in chemicals and materials while minimising safety and sustainability risks.

It is used to assess both the safety and sustainability of chemicals and materials across their entire life cycle, from their production and use to end-of-life stages, therefore reducing harmful substances, substituting substances of concern where possible, and minimising risks.

### The SSbD framework consists of two main components.

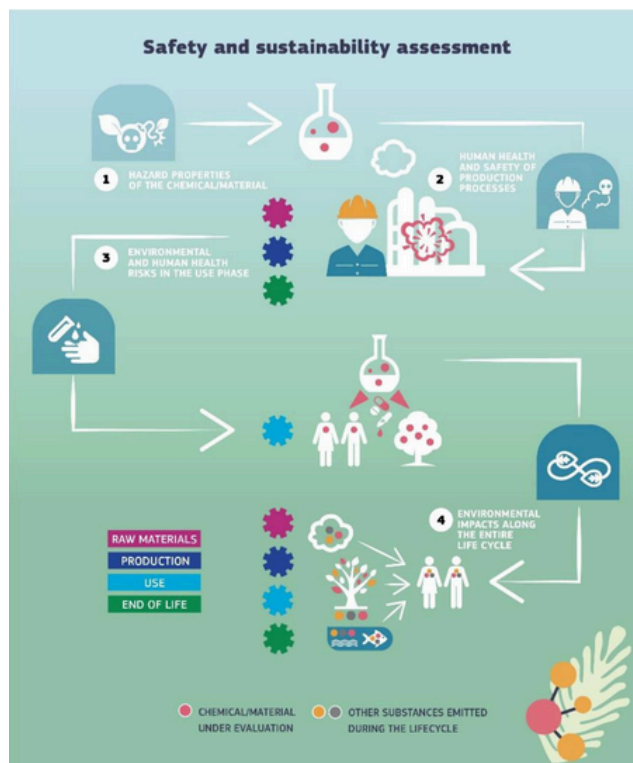
- **Design Principles** (e.g. guidelines) to guide the innovation process, such as designing chemical structures, production processes, or product applications.
- **A Five step Assessment Framework** that evaluates the elements against safety and sustainability criteria. For each step, the framework refers to aspects and indicators, methodologies and tools, and the proposal for the definition of criteria, as well as the evaluation procedure (see figure, right)

### An iterative process

The SSbD follows an iterative process, allowing it to be refined based on new data and stakeholder feedback. This flexibility enables developers to adapt actions and principles as innovation progresses.

The initial testing phase in 2023 revealed three key challenges:

1. **Data Availability:** Difficulties in obtaining essential life cycle data.
2. **Scope Definition:** Ambiguity around system boundaries and prioritising trade-offs.
3. **Guidance Gaps:** Stakeholders called for clearer instructions on system boundaries and decision-making processes.



*"Innovation requires flexibility. The SSbD framework is iterative to refine actions and adapt principles as new data becomes available, addressing uncertainties and improving outcomes at each stage of the innovation process."*

Giulio Bracalente

To address these issues, a **Methodological Guidance Document** was published in May 2024. It introduced an additional scoping analysis stage to help practitioners define system boundaries, clarify the scope, and collect critical life cycle information. The guidance also proposed a tiered approach that considers the product's stage of innovation and adjusts for varying data availability.

As of October 2024, Bracalente noted that the second testing phase had concluded. Stakeholders were invited to provide feedback, which, along with insights from a workshop session, would inform further updates and revisions to both the framework and its methodological guidance.



## The state-of-play on the Safe and Sustainable by Design Framework – discussion

**How does the SSbD framework address different end-of-life scenarios, particularly when considering chemicals, materials, or products? Does circularity always need to be prioritised?**

As I said, according to the level of innovation, there could be different degrees of knowledge of the final application of the chemicals and materials, and this also relates to the end-of-life stage. Circularity is an important aspect that should be taken into consideration as a goal of the innovation, but the framework is flexible. It is not always required to take circularity as a redesign principle that drives your innovation.

By proposing the tiered approach to the SSbD assessment, we take into consideration this kind of uncertainty, particularly at the early stage of the innovation process where the final application is not yet known.

**How does the SSbD framework address trade-offs between durability and degradability, particularly for materials like flame retardants, which must be stable for decades?**

This is an interesting and challenging question. I think your question is about trade-offs, which are the biggest challenges we have to face. The SSbD framework does not pretend to be fully inclusive of all aspects that must be considered when developing a new chemical or material. It should be applied together with the in-house research innovation process to evaluate the performance from the safety and sustainability perspectives.

The goal of the framework is to minimise, as much as possible, negative effects from both safety and sustainability perspectives. For example, if you have many alternatives, applying the trade-off could allow you to choose the ones that ensure durability but also achieve the lowest safety and sustainability impacts.

From a life cycle perspective, durability can really change the environmental impact. If degradability results in poor product performance, durability becomes more relevant. This is reflected in the functional unit of a Life Cycle Assessment (LCA), where durability plays a role in the overall impact over the product's life cycle.

The SSbD framework is designed to guide innovation towards safer and more sustainable chemicals, materials, processes, and products. That doesn't mean existing materials that are essential for certain uses will suddenly be banned. The goal is to encourage alternatives where possible while balancing performance requirements.

**How does the SSbD framework interact with other regulations, strategies, and tools? Are there synergies with REACH, the Ecodesign for Sustainable Products Regulation (ESPR), or flame retardant strategies?**

There are potential synergies with regulations like the ESPR. Considering circularity, the SSbD framework could anticipate requirements that might come from the Ecodesign regulation. This is a possible application we are suggesting—it's not specifically defined yet in the regulatory context.

Regarding REACH, the ambition of the SSbD is to move beyond compliance. It aims to achieve more sustainable chemicals and materials independently of mandatory requirements.

On the question of definitions, particularly harmful substances, the landscape is complex, and I understand the challenges for manufacturers. Substances of Concern, as defined under the ESPR, are fundamentally CLP-based. There is a good alignment between the criteria in SSbD and the classifications proposed under the CLP. In the future, I agree it would be desirable to have a single place where substances of concern are defined.



## Grenfell Tower Inquiry Phase 2: Key findings and responsibilities

**Eric Guillaume, General Manager, Efectis France**

The Grenfell Tower disaster of June 14, 2017, remains a stark reminder of the consequences of systemic failures in fire safety. Dr. Eric Guillaume, General Manager of Efectis France, presented the findings from the Grenfell Tower Inquiry Phase 2 report (published in September 2024), focusing on the failures of regulations, testing standards, and fire safety protocols. With over 25 years of experience in fire sciences, Dr. Guillaume is a recognised expert in fire behaviour, fire testing, and regulatory development. He has advised European authorities, contributed extensively to international fire safety standards, and led critical fire research efforts, making him uniquely positioned to address the lessons learned and solutions needed to prevent similar tragedies. The presentation was followed by a group discussion.

This presentation sets out the Inquiry's findings and opinions. It should not be considered the personal opinion of Dr. Guillaume of Efectis France.

### The Road to Disaster

The inquiry traced the origins of the tragedy to a small kitchen fire on the fourth floor of Grenfell Tower, which rapidly escalated due to combustible (Aluminium Composite Material) ACM cladding with a polyethylene core. Dr Guillaume explained that this material—approved under outdated regulations—acted as an accelerant, enabling the fire to spread vertically along the building's façade.

Dr Guillaume emphasised that the UK's building regulations were a key contributing factor. Vague wording allowed for widespread misinterpretation and misuse of dangerous materials, creating an environment where commercial decisions, such as substituting non-combustible zinc for cheaper ACM cladding, were made without considering fire risks.



*"What we see here is decades of regulatory failure — a system too thin and permissive, where cost trumped safety. The result? 72 lives lost for a saving of a few GBP."*

*Dr. Eric Guillaume*

### Recommendations for reform

The Grenfell Tower disaster was a consequence of regulatory gaps, industry malpractice, and outdated fire safety protocols. The Inquiry set out key recommendations to prevent future tragedies:

- 1. Stronger Regulation:** Building regulations must be clear, enforceable, and designed to prevent the use of combustible materials on high-rise facades.
- 2. Independent Testing and Oversight:** Testing bodies must operate independently, using real-world simulations to evaluate fire performance.
- 3. Industry Accountability:** Manufacturers must ensure products on the market match those tested and certified.
- 4. Modernised Fire Safety Management:** Fire safety protocols must evolve to prioritise dynamic evacuation strategies and address the needs of vulnerable occupants.

### Failures across the system

The inquiry identified specific responsibilities among key stakeholders:

- **The Architects** were deemed incompetent in fire safety considerations. Their decision to replace non-combustible materials with ACM cladding demonstrated a lack of knowledge and oversight.
- **Laboratories** were criticised for relying on flawed testing which did not reflect real-world fire behaviour. Their close relationship with customers compromised its independence and impartiality, allowing unsafe materials to pass certification.
- **Product Manufacturers**, were described as demonstrating "systematic dishonesty" by manipulating fire tests, misrepresenting product safety, and continuing to sell dangerous products despite known risks.
- **The London Fire Brigade** also faced scrutiny for its reliance on the "stay put" policy, which failed catastrophically. Guillaume explained that firefighters missed opportunities to evacuate residents, contributing to the loss of lives.



*"The facade is more than the sum of its parts. Systems must be tested as a whole—only then can we guarantee safety. If we do not act on these lessons, we are condemning ourselves to repeat this tragedy. Fire safety is non-negotiable."*

*Dr. Eric Guillaume*

### Conclusions

Dr Guillaume underscored that **while the inquiry was UK-specific, its lessons resonate across Europe.**

Governments, industry leaders, and safety bodies must collaborate to ensure clear regulations, independent oversight, and continuous monitoring of high-risk buildings.

## Grenfell Tower Inquiry Phase 2: Key findings and responsibilities - discussion

### **What were the key failures of the London Fire Brigade, the architects, and other responsible parties, and how did these contribute to the Grenfell Tower disaster?**

Yes, the Head of Fire Safety at the London Fire Brigade was brought before the court and had to publicly admit that they failed to revise their tactics after the Lakanal House fire [in 2009]. This failure was recognised as contributing to the fatalities at Grenfell, and as a result, she was removed from office. The 'stay put' policy applied by firefighters was not adapted to the development of fire. Complete evacuation was the decision to take.

The architect replaced non-combustible zinc with ACM cladding to save a few GBP. This decision—combined with non-fire-resistant windows—allowed the fire to spread rapidly into the apartments. As soon as the fire entered the [units], you had overpressure inside, and smoke was going out. The facade was the match, and then you had massive fires inside. It's catastrophic when you look at what this small saving caused.

There was also the British Board of Agrément (BBA), which certified the ACM panels without really assessing the installation risks. They were just certifying by putting stamps, and there was no knowledge of product safety or fire behaviour in real use. That was a failure of oversight.

### **Why did the use of ACM cladding cause such rapid fire spread, and what role do current testing standards and regulations play in this problem?**

The fire spread was caused by the interaction between the ACM panels, the cavity, and the insulation. Once you have heat in the cavity, it raises the temperature of the ACM and reaches the ignition temperature of the polyethylene core very quickly. It's this interaction—the system as a whole—that makes ACM dangerous. It's not just the polyethylene alone; it's the way it works with the cavity and the aluminium that drives the fire.

The problem is that testing standards allowed this to happen. Older fire tests—like those from the 1950s—focused on individual materials. If you take ACM and test it under the old classifications, the aluminium sheets can mask the real combustibility of the polyethylene. But if you put it through modern Euroclass tests, you see the real risk: it's Class E or F.

This failure comes back to regulations. The wording in the UK's Regulations was too vague. It allowed misinterpretation and misuse.

So, instead of preventing the use of dangerous materials, it gave too much room to cut corners and make catastrophic mistakes which were not detected due to the lack of competence of construction stakeholders.

### **What are the broader implications of the Grenfell Tower findings for fire safety across Europe, particularly for existing buildings, and what needs to change to address these risks?**

In France, for example, after Grenfell, a study identified 12,000 buildings that needed investigation. That doesn't mean all were at risk, but about 1,000 were confirmed as potentially having the same problem. In Spain, it's worse. Before the 2008 crisis, they used these materials massively in construction. So now, there are thousands of buildings with ACM cladding, and the question is: who will pay for this refurbishment?

In the UK, they created a fund to address the problem. But in the rest of Europe, I would say it's Pandora's box. Nobody wants to take responsibility for the cost, so it's left unresolved. Imagine you just improved the thermal performance of your building, and then you're told two years later that it's no longer safe and must be replaced. Who pays for that?

The bigger issue is accountability and regulation. Facades are systems, not just individual parts. You cannot test a material in isolation. It has to be tested as part of the complete system, under real-use conditions. But that's not always done. As I said earlier, 'The gap exists because responsibility often falls on architects, who lack the competence to make these holistic assessments.' Until we fix that and implement connected, system-level risk assessments, we will face these risks again.



London - Grenfell Tower on fire (Stefano Gasparotto)  
(Stock.adobe.com)

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*This document can be used by any member of the group for discussions with others, to show the areas of exchange and to encourage collaboration on the topics involved.*

**A sector group of Cefic** 

European Chemical Industry Council - Cefic aisbl

EU Transparency Register no 64879 | 42323-90

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