



# Policy and Perspectives:

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# A Global Update on Flame Retardant Regulations

November 14, 2023

# Introductions & Background

# Speakers and Panelists

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- **Introduction and Overview**
  - Robert Simon, ACC/NAFRA
- **North America Policy Developments**
  - Robert Simon, NAFRA
  - Brett James, Sussex Strategy
- **EU Policy Developments**
  - Micheal Hack, BSEF

# Agenda



**01**

**OVERVIEW**

**02**

**NORTH  
AMERICA**

**03**

**EUROPE**

**04**

**QUESTIONS &  
DISCUSSION**

# Key Trends in Chemical Regulation: Continued Push for Zero Risk



**Focusing on  
Hazard  
Only**



**Requiring  
Zero  
Threshold**



**Regulating  
Classes of  
Chemicals**



**Allowing  
Essential  
Uses Only**



**Driving  
Requirements  
for  
Alternatives**

# Global Chemical Regulation – Key Policy Considerations

- Fostering patchwork of different, and in some cases, conflicting regulations
- Presents challenges for policy makers/regulators
- Presents challenges for manufacturers and downstream users, particularly those with complex products and supply chains
- Real long-term implications for product design, safety, performance, innovation and sustainability
- Potential to drive regrettable substitution and undermine broader societal priorities
- Need to take a more holistic approach to guide “smart” regulation
- Input and engagement of downstream users is absolutely critical – get engaged and help inform

# Flame Retardants Key Functionality

## **NO IGNITION – NO FIRE**

- **Broad range of substances with differing characteristics and intended uses**
- **Used ONLY in products presenting fire risk, incl. E&E**
- **Inhibit ignition – essential for safe use of many products and for meeting safety standards**
- **Key in fire prevention – first layer of fire safety**
- **Flame retardants help save lives**

# Key Factors in FR Selection for Use in Products

Physical Properties

Ease of Compounding

Adequate Thermal Stability

Corrosivity Issues

Compatibility

Health and Environmental Toxicity

Appearance

UV Stability

Electrical Properties

Combustion Products

Efficiency/Cost



## Regulatory Landscape & Product Design Considerations

- **Differing regional approaches in regulating flame retardants**
  - Creating additional complexity for product manufacturers
- **Regulators not always using risk-based approaches**
  - Should consider exposure in addition to hazard but in some cases are not
  - Fire safety and product design should also be considerations for regulators



## **Regulatory Landscape & Product Design Considerations**

- **Not using a risk-based model can lead to regrettable substitution**
  - This can pose threats and challenges for product design
  - Variety of factors inform use of flame retardants in products
- **Flame retardants need to remain an option for product manufacturers**
- **Increasing need for input from downstream users with regulators**



# North America

# NAFRA Overview

Leading producers of flame retardants used in wide variety of industrial & consumer applications

- Albemarle Corporation, ICL Industrial Products, and Lanxess
- Represent cutting edge fire-safety chemistry & technology
- Dedicated to improving fire safety performance in key product applications

# North American Regulatory Update

Robert Simon

American Chemistry Council,  
North American Flame Retardant Alliance

Brett James

Sussex Strategy



North American Flame  
Retardant Alliance



# Overview – North America

- **Overall strong science and risk-based system for chemical regulation**
- **Generally, regulation has focused on historical products and uses, with no significant FR restrictions in critical applications**
  - Broad recognition that critical products (EE&E, transportation, aerospace, building/construction) are unique and typically exempted under existing laws
- **However...we are seeing an increase in policy proposals with implications for downstream users**
- **Need more engagement from downstream users to promote a continuation of science-based policies**



## United States – Federal & State Regulation

- **Some FRs are undergoing evaluation under national chemical regulation law (TSCA)**
  - Substances include HBCD, TBBPA, TPP, TCEP
- **Actions under TSCA align with United States-Mexico-Canada Agreement and continued regulatory cooperation between the countries**
- **U.S. state regulatory activity includes new Washington State regulatory program**

**Understanding the Final SPW Cycle 1  
Regulations for Flame Retardants in External  
Plastic Enclosures**



# About the Final Rule

- **Final Rule for Safer Products for Washington – Cycle 1** was published on May 31, 2023
- **Regulates 10 chemical-product categories**
- **Priority categories include flame retardants in:**
  - **Casings and enclosures for electronic and electrical equipment (EEE)**
  - Recreational polyurethane foam products

## **Question: Does this impact all electronic products sold in Washington State?**

**No**

- **The Cycle 1 regulations recognize the numerous critical uses of flame retardants and that these substances can and should continue to be used where appropriate in a broad range of applications**
- **The regulation provides exemptions for many key industries, including medical technology, aerospace, motor vehicles, and certain electronic component manufacturers**
- **Includes process for requesting additional exemptions**

# Existing Exemptions in SPW Statute

- Plastic shipping pallets manufactured prior to 2012
- Food or beverages
- Tobacco products
- Drug or biological products regulated by US FDA
- Finished products certified or regulated by the Federal Aviation Administration or the Department of Defense, or both, including parts, materials, and processes when used to manufacture or maintain such regulated or certified finished products
- Motorized vehicles, including on- and off-highway vehicles, such as all-terrain vehicles, motorcycles, side-by-side vehicles, farm equipment, and personal assistive mobility devices
- Chemical products used to produce an agricultural commodity, as defined in RCW 17.21.020
- Inaccessible electronic components of an electronic product

# Exemptions for the Restrictions Outlined in the Final SPW Rulemaking for EEE Casings

- Electric and electronic products with plastic external enclosures, intended for outdoor use
- Consumer products that receive power only when they are hard-wired into and permanently part of the fixed electrical wiring of a building – This includes wiring devices, control devices, electrical distribution equipment, and lighting equipment
- Products regulated by the FDA as medical devices
- Products designed to use non-electric heating energy sources, such as natural gas
- Inaccessible electronic components, such as printed circuit boards and internal fans
- Internal parts that are removable and replaceable, but not accessible once the product is in its fully assembled and functional form
- Plastic external enclosure parts that weigh less than 0.5 grams
- Screens - This subsection does apply to the plastic enclosures surrounding the actual screen
- Wires, cords, cables, switches, light bulbs, and connectors

**ADDITIONAL BACKGROUND SLIDES ON  
SAFER PRODUCTS FOR WASHINGTON  
REGULATORY PROGRAM**

# Final Regulations for Indoor Products

- **Restrictions for intentionally added OFRs used in plastic external enclosures for INDOOR EEE products**
  - Applies to products using either 1) a standard 120-v outlet up to 20-amp circuit or 2) a battery
  - Use in TVs and electronic displays starting on Jan. 1, 2025 and phased in for certain displays through Jan 1, 2027
  - Large businesses (over \$1B in worldwide gross sales in '22) from manufacture or sale of other applicable indoor EEE products starting on **Jan. 1, 2027**
  - Includes broad range of exemptions for critical uses and a process for seeking additional exemptions

# More on Regulations for Indoor Products

- **Restrictions for intentionally added OFRs used in plastic external enclosures for INDOOR EEE products**
  - Small businesses (less than \$1B in worldwide gross sales in '22) from manufacture or sale of other applicable indoor EEE products starting on **Jan. 1, 2028**
  - Includes broad range of exemptions for critical uses and a process for seeking additional exemptions
  - Thresholds for defining “intentionally added”
    - 1,000 ppm for total bromine or total chlorine concentration
    - 1,000 ppm for total fluorine concentration with less than 5,000 ppm total phosphorus

# Reporting for Outdoor Products

- **Reporting requirement for intentionally added OFRs used in plastic external enclosures for OUTDOOR EEE products**
  - Applies to products using either 1) a standard 120-v outlet up to 20-amp circuit or 2) a battery
  - Threshold for defining intentionally added: Same as indoor products
  - Reporting requirement starts on Jan. 1, 2025, for products sold in 2024
  - Report must include one of six concentration ranges for each OFR in the casing or enclosure and be made between Jan. 1 and Jan. 31 each year for products sold the prior year



# Canada – Proposed Regulation of DBDPE



- **DBDPE is an FR used in many applications**
- **No current restrictions on DBDPE globally**
- **Science and government assessments indicate that DBDPE does not present a risk to human health or the environment**
  - ECCC's risk assessment concluded that DBDPE is not harmful to human health and does not present an environmental danger
  - However, ECCC inappropriately used another chemical as a structural analogue to conclude that DBDPE may degrade in the environment in the future
- **Risk assessment is an outlier and any proposed regulations could create disruptions for supply chains**

# Canada – Status of Proposed DBDPE Regulations



- Canada still assessing and determining whether and how to regulate DBDPE
- Manufacturers have provided significant information on the safety and critical uses of DBDPE
- As a result, Canada has delayed proposed regulations for more than three years and does not anticipate finalizing any regulations until Summer 2024
- Canada has informally communicated that any final regulations will provide significant extended timelines for any regulation with exemptions for **all** manufactured items
- Manufacturers and users encouraged to provide any additional information to inform ongoing assessment

# Europe

# BSEF EU Policy Developments



14<sup>th</sup> November 2023



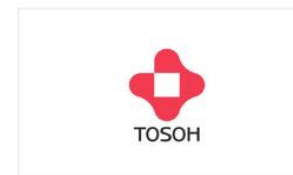
The International  
Bromine Council

# Who we are



## Foundation, Membership & Global Presence

- BSEF – The International Bromine Council is the global representative body for bromine producers and producers of bromine technologies
- Founded in 1997, members of BSEF are Albemarle Corporation, ICL Industrial Products, Lanxess, Haiwang and Tosoh
- Everkem is a new applicant member of BSEF
- Offices & representatives in Europe, China, Japan, South Korea, India, Vietnam
- BSEF Partners include the North America Flame Retardant Alliance (NAFRA), the European Chemical Industry Council (CEFIC), the India Bromine Platform (IBP) and Chemistry Australia.



# Mission & Activities



## What we do

BSEF have committed to foster knowledge on the societal benefits of bromine and its applications, and promote research and development of robust bromine-based technologies meeting the needs of modern society

## How we do it



**Provide** information on the use of bromine



**Encourage** the safe use and handling of bromine



**Work** with downstream use associations



**Share** our knowledge freely

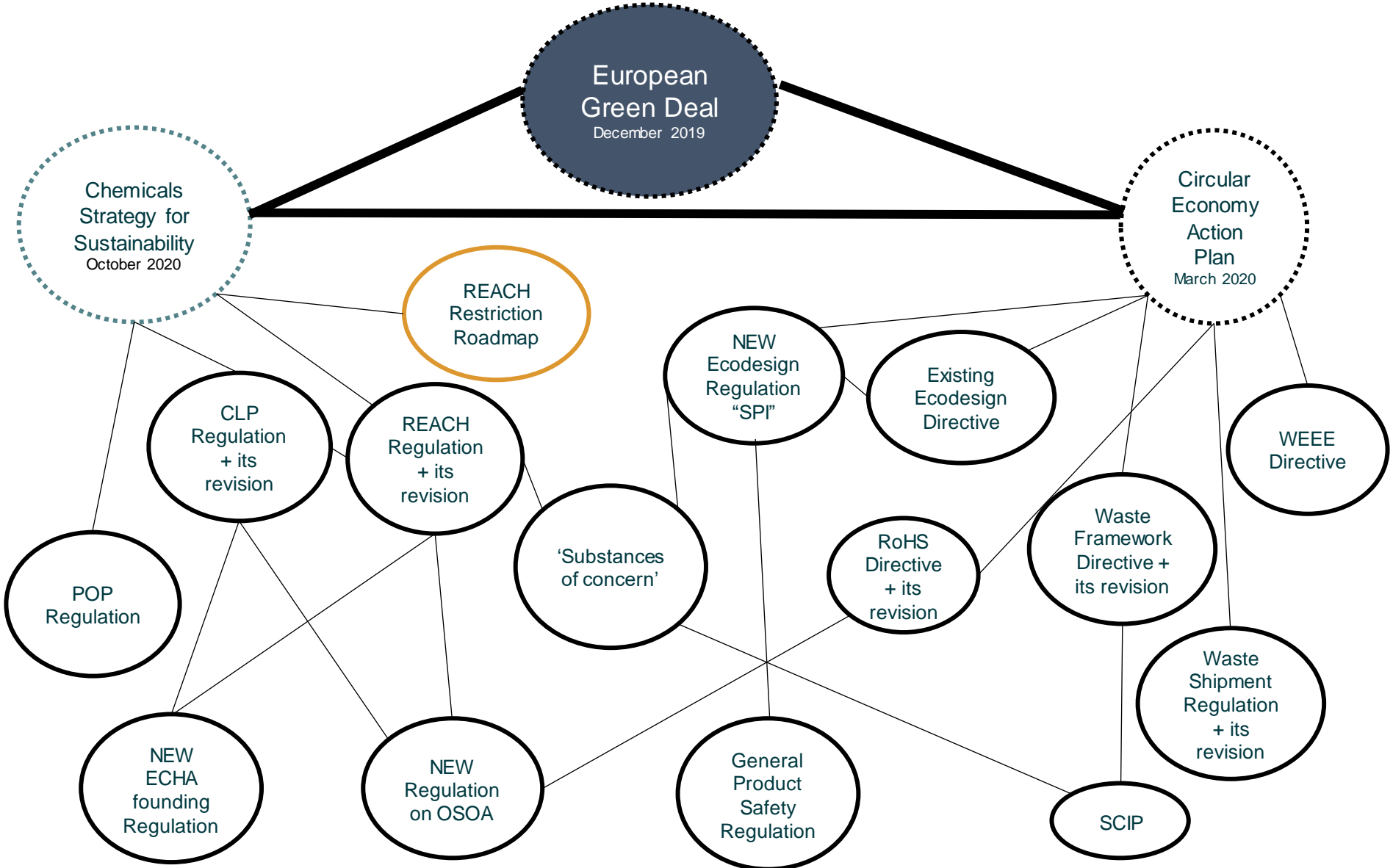


**Initiate and fund** Scientific research programmes



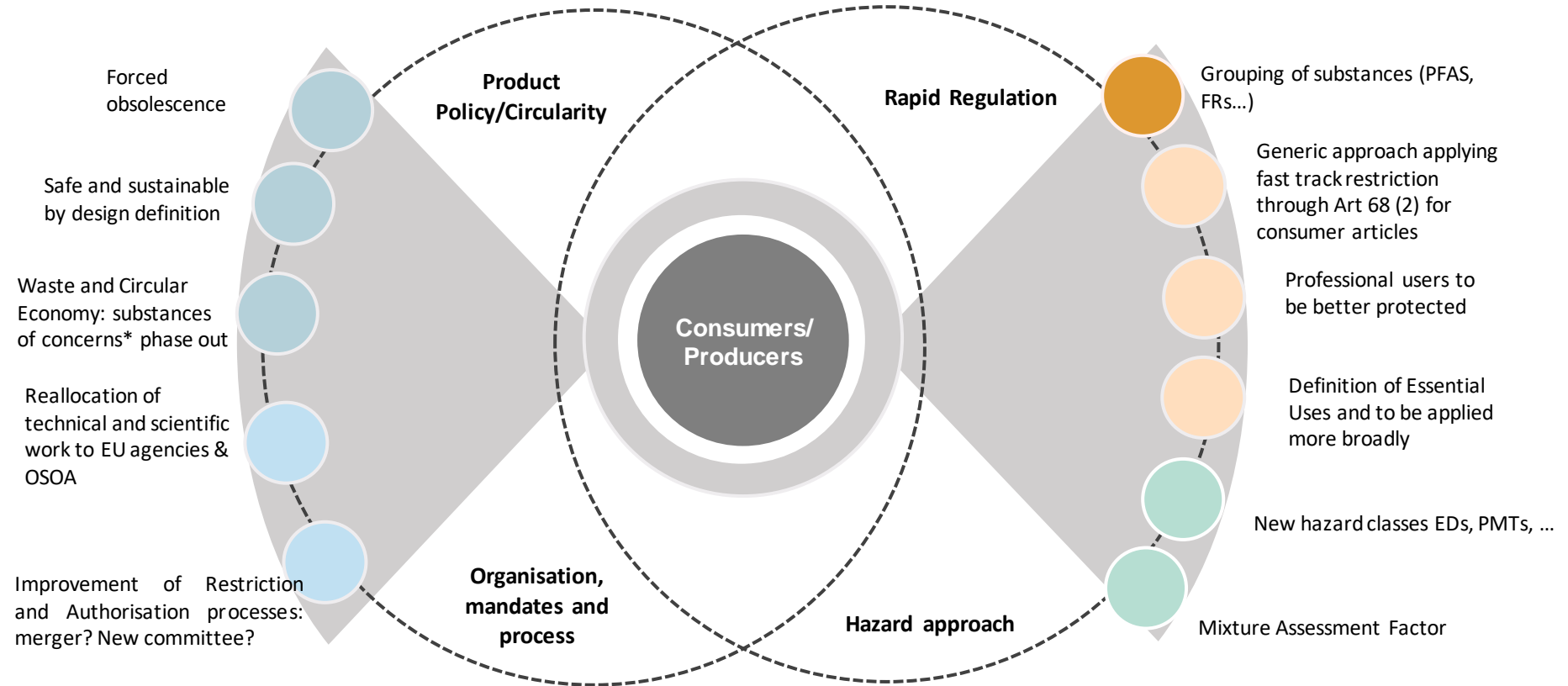
## **Key regulatory developments for Europe & The ECHA Regulatory Flame Retardant Strategy**

# The EU Green Deal & New and Recent EU Regulation affecting flame retardants





# Key themes of the Chemicals Strategy for Sustainability affecting all chemistries





# ECHA Regulatory strategy for flame retardants

## How did we get here?

**Grouping is not new.** ECHA have been grouping substances for many years to speed up the evaluation processes

**On 14th October 2020** – Chemical Strategy for Sustainability published

**On 25th April 2022** – The EC publish the REACH Restriction Roadmap

**On 15<sup>th</sup> March 2023** – ECHA publish the Flame Retardants Strategy

- Covers both Brominated and Phosphorous Flame Retardants
- For BFRs split into two groups; Aromatic and Aliphatic

**On 28<sup>th</sup> March** - ECHA presented the strategy in the CARACAL meeting to which BSEF responded

**On 6<sup>th</sup> June** - BSEF met with DG Grow

**On 25<sup>th</sup> September** - BSEF met with ECHA

**On 2<sup>nd</sup> October** – BSEF met with Sinkevičius Cabinet

**On 16<sup>th</sup> November** – BSEF will participate at CARACAL

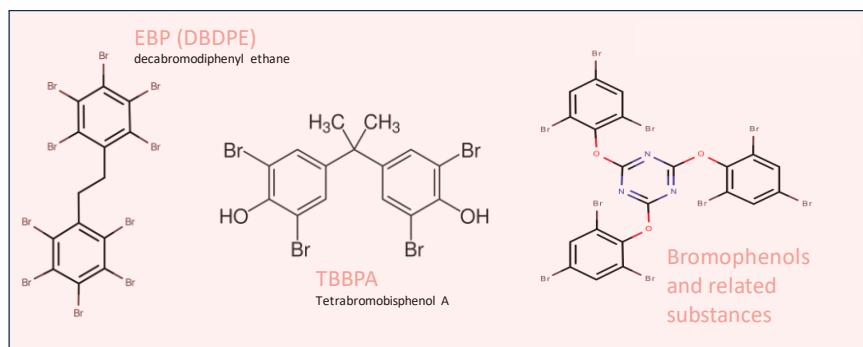
# The ECHA Flame Retardant Strategy



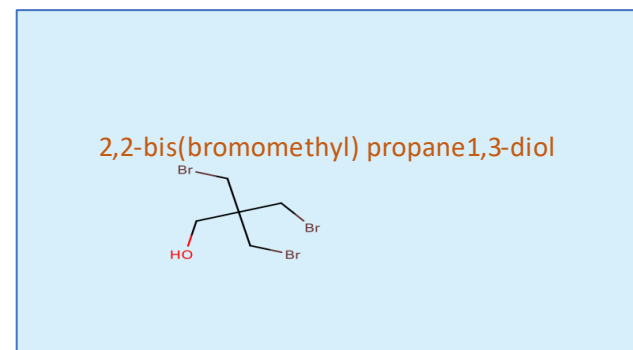
Resulting from the April '22 REACH Restriction Roadmap, on 15<sup>th</sup> March 2023 – [ECHA publish the Flame Retardant Strategy](#)

- The FR strategy
  - strives for consistent regulatory actions across all FR chemistries
  - is an **unprecedented opportunity to address all FRs** broadly and coherently. Data generation is needed for all FRs.
- Brominated Flame Retardants (BFRs) are split into two groups;
  - 1) Aromatic – *'Wide and generic restriction for all Aromatic BFRs that are or will be confirmed as PBT/vPvB via CLH/SVHC'*
  - 2) Aliphatic – *'Any potential process for restriction is not expected to be initiated before 2025'*

## Aromatic



## Aliphatic



# ECHA FR strategy summary: Bromine in aromatic structures



- According to the ECHA FR strategy, generic restriction justified based on rationale that releases cannot be minimized and alternatives appear available.
  - BSEF position:
    - Substitution not readily possible in all circumstances – loss of performances
    - Potential to minimize releases needs further assessment
  - Generic Restriction (not distinguishing between uses) for aromatic organic BFRs
    - Dynamic scope – ‘*confirmed or will be confirmed [in the future]*’
    - with PBT/vPvB properties
    - Via SVHC or CLP harmonized classification
- Core (starting scope): DBDPE; two brominated phthalates, despite PBT/vPvB properties not confirmed
- Additional substances would be added as PBT/vPvB confirmed
  - TBBPA + derivatives (PBT/vPvB confirmation early 2026?)

## Recap from FRs strategy

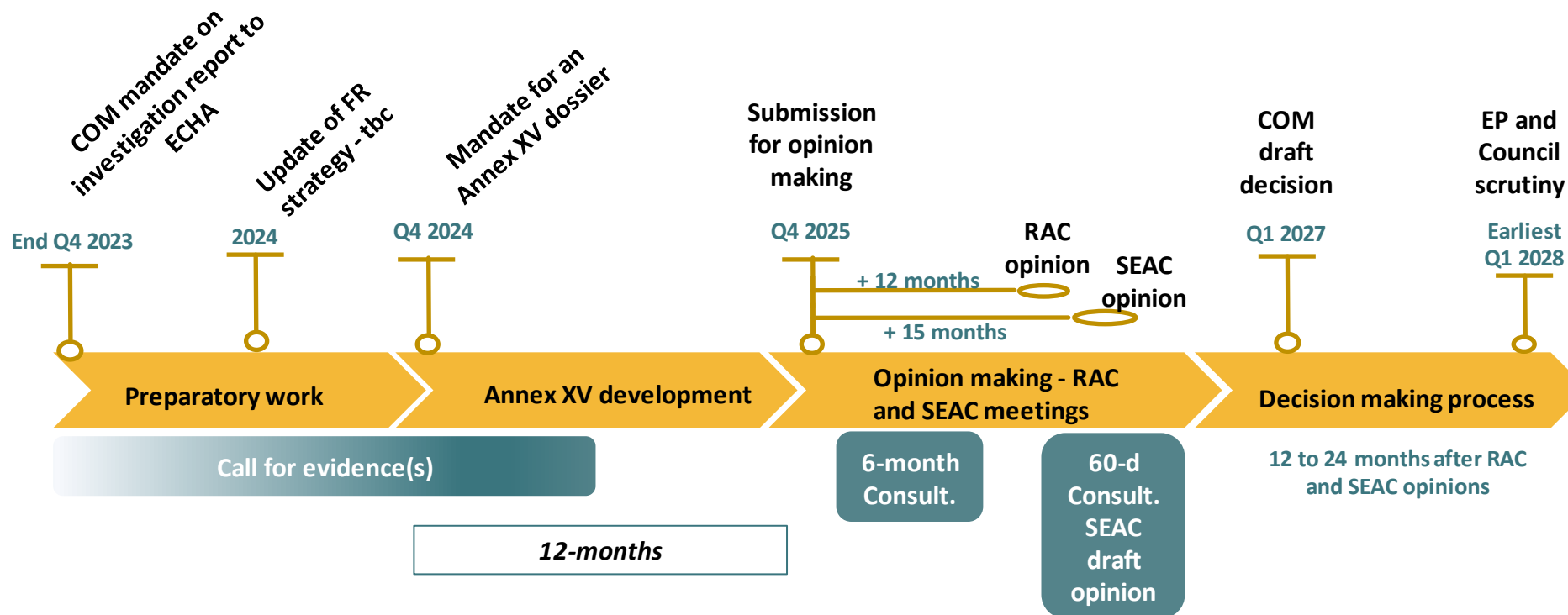
→ Wide and generic restriction for all aromatic brominated FRs that are or will be confirmed as PBT/vPvB via CLH/SVHC

→ Further preparatory work may be needed

→ .....



# Indicative timeline for aromatic BFRs restriction





## ECHA FR strategy summary: Bromine in aliphatic structures

- More diverse hazard properties than for aromatic BFRs
- Broad restriction is not initially foreseen
- Restriction proposal should be postponed until data generation is concluded
  - Reassess group in 2025 – group restrictions not expected before
- BMP and TBNPA – ‘reactive brominated alcohols’
  - Carcinogenic properties confirmed
  - Could be candidates for more rapid restriction
  - Uses in PU foams and unsaturated polyester resin

# BSEF Key points on FR Strategy to be considered



- As BFRs are critical to fire safety, a restriction would be at odds with the **concept of proportionality**
- The proposed strategy is merely hazard-based. **Exposure considerations should be considered** to set priorities

**Risk = Hazard x Exposure**



- Some FRs are currently undergoing REACH Substance Evaluation and the **results should be awaited**. This would be consistent with ECHA's own scientific approach and would prevent regrettable substitution
- **Substitution is not readily possible**
- The **availability of suitable alternatives** (or the lack thereof) needs to be evaluated
- BSEF and its member companies are actively supporting the development of **advanced recycling options** for BFRs



-> Preparatory work should be done properly and be taken into account in any mandate from the Commission to ECHA



## Some key findings of the dss+ study

- 2020 Sofies Sustainability Consultants presented a BSEF-Commissioned study on [the impact of Brominated Flame Retardants \(BFRs\) on WEEE plastics recycling](#)
  - A Key finding was that brominated flame retardants are not hindering the recycling of WEEE plastics more than any other additive
- Dss+ have recently published an update to this study (September 2023). Some findings are as follows;
  - A significant **decline in the levels of polybrominated diphenyl ethers** (PBDE), identified as a Persistent Organic Pollutant, in WEEE plastics over the past decade.
  - Potential of **innovative and emerging recycling technologies** such as CreaSolv, PLAST2bCLEANED, and NONTOX, in handling bromine-rich polymers and recovering valuable materials from WEEE plastics.
  - Europe continues to produce  $\approx$  2.6 million tonnes of WEEE plastics annually, yet **only 54% (1.4 million tons) are collected through official WEEE channels**. This implies that over 45 % of the WEEE plastics enter informal or undocumented waste streams which result in non-compliant recycling methods, exports or disposal by incineration or landfill.

Please find the full study available [here](#)

Please also find a recording of a recent seminar on same [here](#)



## What should be your role in the future?



- Stay informed
- Connect with BSEF
- Raise questions to Commission and ECHA
- Contribute to possible SEAs



# THANK YOU

More info: <https://www.bsef.com/policy/chemical-safety/flame-retardants-strategy/>

Email address: [mhack@bsef.org](mailto:mhack@bsef.org)

Visit our website for more information on Bromine and its applications

or join us on our Let's Talk Bromine Blog:

<https://lets-talk-bromine.bsef.com>



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The International  
Bromine Council



## ADDITIONAL EU BACKGROUND SLIDES



## BSEF key considerations on Grouping

- **Brominated Flame Retardants are essential to protect lives and property**, by inhibiting ignition of combustible materials, and by slowing the rate at which a fire propagates increasing escape time and time for emergency services to act.
- Individual Brominated Flame Retardants are designed to work in a polymer system. They are widely different in structure and functionality. **They are not one single group of similar chemicals**. Substituting one brominated flame retardant with another or with a non-halogen flame retardant is not readily possible in all circumstances.
- REACH dossiers can be used to assess chemical similarities however more **robust analysis should include detailed information on the working mechanism, properties, uses and end use applications** of chemicals under review.
- When identifying the essential use of a Brominated flame retardant or its alternatives, **technical performance, durability of the final article, matrix compatibility, end of life considerations and overall environmental and socio-economic impacts are also important characteristics** for sound regulatory decision making.
- BFRs should not be divided into just two groups. For instance, the US National Academy of Sciences, Engineering, and Medicine (NASEM) recommended grouping them into 14 subclasses, based on chemical structure, physicochemical properties, and predicted biologic activity, for purposes of further regulatory assessment.
- ECHA: *Grouping used as prioritisation, and data overrides starting hypothesis (i.e. Substance by substance)*
- BSEF full position paper on grouping is available [here](#)

# Key Takeaways & Industry Coordination

## Key Takeaways

- **Product safety is a shared objective**
- **Global regulatory landscape is evolving and companies should be aware of the challenges**
- **This shift requires more active input from downstream users**
  - Perspectives of those with product design experience and expertise are particularly valuable

## **Action You Can Take**

- 1. Utilize NAFRA and BSEF as resources**
- 2. Register for any additional exemptions in Washington State**
- 3. Communicate the importance of DBDPE to Canadian officials**
- 4. Participate and help inform the development of the EU Flame Retardant Strategy**

## Industry Coordination & Resources

- **Opportunity to work together on proposed policies so that your interests are considered**
- **NAFRA and BSEF will continue to be a resource to assist product manufacturers and users**
- **Reach out to us if you have questions**
- **Resources**
  - [BSEF - Bromine: Powering Science and Technologies](#)
  - [ACC NAFRA Industry Site](#)
  - [Flame Retardants Facts](#)



# Questions & Discussion



**Thank You for  
Attending**

