

*BSEF Position Paper (long version)*  
**Circular Economy Action Plan 2020**

30 June 2020

## Introduction



BSEF, the International Bromine Council, supports the strong EU drive for a more circular economy contributing to a more sustainable and greener future. The recently adopted EU [Circular Economy Action Plan](#)<sup>1</sup> as part of the EU's "Green Deal", sets out a range of actions and initiatives designed to

enhance circularity. However, making the EU economy more "circular" also implies changes to its industrial development and innovation models. Close synergy is therefore needed between the Circular Economy Action Plan and the proposed EU Industrial Strategy.

Bromine-based technologies already contribute to sustainability and circular solutions. Bromine offers solutions to a wide range of environmental, social and economic needs including water treatment, reduction of mercury emissions, fire safety, energy storage and generation, production of pharmaceuticals and enhanced quality rubber for durability and safety.

With respect to brominated flame retardants (BFRs), their use in materials and products contributes to their overall safety (reduced propensity of material for ignition). This not only means a contribution to saving lives, but also products and property, thus preventing waste of resources. At the end of life, plastics products containing brominated flame retardants can undergo several waste management treatment options depending on the amount and composition of the plastics waste stream as well as on local conditions. BSEF companies are actively working with value chain stakeholders to further enhance circularity of materials by investing in novel end of life technologies (see annex).

The chemical industry, with its substantial innovative capacity, and is a key enabler in the development of solutions which can accelerate the transition to a circular economy and contribute to meeting the

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<sup>1</sup> <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52020DC0098&from=EN>

goals of the European Green Deal, the Paris agreement and the UN 2030 Sustainable Development Goals.

BSEF member companies<sup>2</sup> are members of the European Chemical Industry Council (Cefic) and BSEF itself is a partner organisation of Cefic. It therefore supports the view that guiding principles<sup>3</sup> are needed for the development of an EU Circular Economy including:

- Developing a **sustainable business case** in which economic, societal and environmental aspects are balanced, whilst maintaining the competitiveness of the European industry
- **Increasing the share of circular feedstock**, through reuse of materials, extension of lifetime using more durable materials, resource recovery and mechanical, dissolution and chemical recycling technologies of waste
- **Building on and driving scientific and technological innovations**, to better use resources as well as ensure effective and efficient end of life reuse, recycling or other sustainable end of life solutions
- **Ensuring a life-cycle approach** to effectively ensure the reduction of chemical exposure and emissions
- **Taking a collective value chain approach** over the lifecycle of materials /products to enhance circularity
- **Recognising and reinforcing a risk-based approach** to end of life treatment of materials containing hazardous substances

BSEF has carefully reviewed the specific actions and initiatives proposed by the European Commission in its EU Circular Economy Action Plan. The following are its comments and suggestions with respect to the further development of these proposals in the coming years.

### Development of a sustainable product policy framework

The European Commission has been promoting a product-based policy approach to addressing wider systemic environmental and sustainability impacts since the late 1990s. Its proposed “sustainable product policy framework” is therefore not new in and of itself. The Commission suggest the initiative will “include a legislative proposal establishing sustainability principles and horizontal rules applicable, as appropriate, to all products while preserving safety and functionality”. This is welcome, particularly the balancing of sustainability with product safety and functionality. It will be important, though, to see this balancing reflected in EU product policy instruments and processes such as ecolabel, Green Public Procurement and ecodesign.

The proposal to ultimately define “sustainability design parameters” is also welcome and important in order to have consensus amongst EU institutions and stakeholders when engaged in improving

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<sup>2</sup> BSEF member companies are Albemarle, Lanxess, ICL group and Tosoh

<sup>3</sup> CEFIC views on circular economy 2.0 – Towards a carbon-smart circular future

environmental performance of materials, products or services. To give practical effect and legal certainty around these parameters, the Commission should consider appropriate revisions to the 2009 Ecodesign Directive. This would also be the opportunity for balancing functionality and product safety considerations in product design.

Sustainability of products also implies responsibility of producers for the products they place on the market, including for their end of life phase. The Circular Economy requires greater engagement and responsibility of producers to help close the loop. The recently revised and updated EU Waste Framework Directive provides the basis for Commission proposals in this area.

BSEF supports greater producer responsibility based on value chains taking responsibility for achieving sustainability and circularity. For instance, its voluntary emission control action programme - VECAP<sup>4</sup> has been instrumental in substantially reducing losses and waste of brominated flame retardants from production and downstream user industrial installations.

### Priority Product Groups

The Commission is proposing, amongst other priority product groups, a “Circular Electronics Initiative” which BSEF welcomes. The ubiquity and diversity of electrical and electronic equipment in society has been transformative across many economic sectors as well as in our social and leisure activities. Such equipment plays its part too in managing and facilitating our shift to electrical energy as the main energy driver. Flame retardants and particularly brominated flame retardants have been and will be at the forefront in ensuring that such equipment meets fire safety standards keeping people and property safe from fires.

In terms of circularity, The EU already has several legislative tools in place concerning collection and recycling of electrical and electronic equipment, notably the WEEE Directive<sup>5</sup>. However, numerous studies have shown that despite the WEEE Directive, collection rates and actual recycling of WEEE is not optimal and needs to be addressed. Therefore, a value chain approach must be at the heart of the Circular Electronics Initiative.

Electrical and electronic equipment contains hazardous substances which must be managed carefully throughout the life cycle of such equipment and particularly at the end of life stages. The WEEE CEN Standards<sup>6</sup> greatly aid the safe end of life treatment of WEEE waste. However, they are voluntary. BSEF would support them being made mandatory to harmonise the approaches to WEEE treatment across the EU. Additionally, BSEF would like to see a review of the WEEE Directive requirement for mandatory separation of BFR containing plastics given the continuing decline of legacy POPs BFRs. Currently, all BFRs are penalised due to this requirement.

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<sup>4</sup> For more information VECAP visit: <https://www.bsef.com/sustainability/vecap/>

<sup>5</sup> Directive 2012/19/EU of the European Parliament and of the Council of 4 July 2012 on waste electrical and electronic equipment (WEEE)

<sup>6</sup> WEEE CEN Standards – EN 50625 series

BSEF note the Commission proposal to review *“EU rules on restrictions of hazardous substances in electrical and electronic equipment... to improve coherence with relevant legislation, including REACH and Ecodesign”*. Based on recent and direct experience with both instruments mentioned as well as overlap with the EU’s Restriction of Hazardous Substances (RoHS) Directive, we can only endorse any measures that will bring coherence with respect to assessment and regulation of chemicals in products. The review of the RoHS Directive provides the opportunity to address this issue comprehensively and provide clarity around the roles of the regulatory instruments mentioned.

### **Enhancing circularity in toxic free environment**

Products and materials used in everyday such as electronic appliances, furniture or construction materials contain or use different chemicals and metals required to provide functionality, performance, efficiency or fire safety. Many if not all these substances will have hazard properties. If emitted or taken in high dose, they may result in toxicity which is why all substances placed on the market in the EU regulated under REACH.

Practical policies enabling circularity of products and materials are confronted with the reality that there will always be hazardous substances used or present in products and these will be with the product even at end of life. A risk-based approach is therefore required to enable maximum recycling of materials at the same time ensuring limit values for hazardous substances that are protective for human health and the environment.

To illustrate the need for a risk based-approach to circularity, BSEF has noted a trend in recent years with respect to classifying waste according to Directive 2008/98/EC on the classification of waste which, if it continues, will lead to an acceleration of movement of certain valuable post-consumer material streams out of the EU. The issue is differential interpretation of the so-called HP 14 criteria<sup>7</sup> which is already for instance, making it impossible to export e-waste plastics that contain BFRs from France to other EU countries where they can be effectively treated. The consequence of all this is that local waste traders buy the materials and send them to third countries such as Malaysia where effective and responsible end of life treatment in line with EU standards is not guaranteed.

Given the current inconsistent approaches being adopted by EU member states on this issue, the Commission needs to actively take charge and coordinate an EU-wide effort to ensure cross border shipments of waste are not impeded and that the rules contribute to the circular economy.

### **Revision of the EU POP Regulation limit values for PBDEs and HBCD**

BSEF notes the intention of the Commission to review the annexes in the EU POP Regulation Recast of 2018. Any review of the limit values for low POP concentration limits (LPCL) and related unintended

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<sup>7</sup> Council Regulation (EU) No 2017/997, Official Journal of the European Union on 14 June 2017

trace contaminants values (UTC) contained in the 2018 Regulation, need to be based on a risk assessment as well as consideration of the technical and economic feasibility for recyclers to meet any lower limit values.

In the medium term, the emergence of new chemical recycling technologies (such as dissolution technologies) will allow for further enhancement of treatment of materials containing legacy substances such as POPs thus contributing further to the circular economy. BSEF members and the associated value chain are already working to demonstrate the application of innovative technologies to address legacy substances and material circularity with assistance from the EU LIFE programme<sup>8</sup>.

### Revision of the Waste Shipment Regulation

BSEF welcomes the initiation of a review of the EU Waste Shipment regulation<sup>9</sup> which was indicated in the Circular Economy Action Plan. As outlined by the Commission in the inception road map for the revision, “waste shipped across borders can generate risks for human health and the environment, especially when not controlled and managed properly”. We can only concur with this view noting that with respect to electrical and electronic waste, the problem is particularly acute. On the one hand, this waste, which can be “hazardous” given its multiple material and substance composition, is not being treated safely in a number of third countries. On the other hand, these products contain valuable raw materials such as precious metals and indeed critical raw materials, which should be recycled within the EU and reused within an EU manufacturing context.

Strengthening rules under the WSR on export prohibitions for certain categories of waste and certain destinations should be actively considered. As the Commission itself notes in its inception impact assessment, “the most important example is the prohibition to export hazardous waste from the EU to non-OECD countries”.

### Conclusions

The European Commission have set out an updated Circular Economy Action Plan building on its 2015 predecessor. BSEF, on behalf of the bromine industry, will actively engage in the roll out of the plan and provide input to those elements where it can actively contribute to providing expertise and solutions. Additionally, BSEF member companies will continue innovating and investing in solutions that will help the EU achieving its Circular Economy goals while they also contribute to economic growth and job creation.

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<sup>8</sup> EU LIFE Project 16 ENV/NL/000271.

[https://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n\\_proj\\_id=6263&docType=pdf](https://ec.europa.eu/environment/life/project/Projects/index.cfm?fuseaction=search.dspPage&n_proj_id=6263&docType=pdf)

<sup>9</sup> Regulation (EC) No 1013/2006 of the European Parliament and of the Council of 14 June 2006 on shipments of waste, OJ L 190, 12.7.2006



The International  
Bromine Council

We look forward to engaging with the Commission, Member States, the European Parliament and other stakeholders in the upcoming discussions. We will also be actively engaged on sector specific and value chain initiatives designed to address end of life issues.

**For further information please contact:**

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**About BSEF**

BSEF, the International Bromine Council is a Brussels-based trade association that represents the International bromine industry. Founded in 1997, BSEF works to foster knowledge on societal and economy benefits of bromine and its applications. The members of BSEF are Albemarle Corporation, ICL Industrial Products, Lanxess and Tosoh.

## Annex/

### Bromine and the Circular Economy

Bromine-based technologies already contribute to sustainability and circular solutions. Bromine offers solutions to a wide range of environmental, social and economic needs including water treatment, reduction of mercury emissions, fire safety, energy storage and generation, production of pharmaceuticals and enhanced quality rubber.

### End of life Recycling of BFR Containing Plastics

Plastics with BFRs have excellent stability during recycling which allows recycled plastics to meet the same levels of fire safety as virgin material and maintains the value originally provided by flame retardants in the material. Where BFRs are used reactively, such as in the fabrication of FR4 printed circuit boards, the treatment is driven by the desire to recover valuable precious metals and other metals. In such treatment process (e.g. metal smelters), the resin base of the circuit boards is consumed as energy.

Where BFRs have been used additively – added to the polymer mix – the recycling of end of life plastics is dependent on the end of life management of the products where these plastics are used. For plastics from end of life automotive, electrical and electronic products, mechanical recycling is used to recover different valuable technical plastics for use again in new plastic parts and components. However, some BFRs are restricted under RoHS or listed as POPs. These four substances, which are no longer allowed in new products, are still present in waste streams and thus must be treated carefully. The WEEE Directive (EU 2012/19/EC) requires the segregation and separate treatment of BFR-containing plastics in order to ensure that restricted substances are removed from the material stream and destroyed. The WEEE CEN Standards<sup>10</sup> provide the basis for recyclers to achieve this and ensure that plastics being used again do not contain legacy BFRs.

When recycling is not possible for technical reasons, there is a range of waste management options to deal with these fractions including advanced solid waste incineration. New, innovative chemical recycling technologies (e.g. dissolution and pyrolysis) are also emerging which will lead to the recovery of plastic resins and their reuse in new plastics products.

The bromine industry, along with its value chain, is also innovating the way it helps manage materials with legacy chemicals. One example of this is the EU LIFE co-funded Polystyrene Loop Project<sup>11</sup> designed to provide a large scale demonstration plant using the CreaSolv dissolution process (chemical recycling). The Poly Styrene Loop concept uses the CreaSolv® Technology; allowing for the recycling of

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<sup>10</sup> Article 8.5 of the WEEE Directive 2012/19/EU requires the establishment of standards for the collection, treatment and re-use of waste electrical and electronic equipment. These standards are published by CEN as a series – 50625. S.R.CL/TS 50625-3-1:2015 addresses inter alia treatment of bromine containing plastics

<sup>11</sup> <https://polystyreneloop.eu/>



post-consumer construction polystyrene foam waste, the destruction of HBCD (a POP under the Stockholm Convention), while recovering the bromine.

The project provides for a large scale demonstration plant using the CreaSolv dissolution process; this technology, combined with the high-temperature incineration of HBCDD and a bromine recovery unit (BRU) to ensure:

- the recycling of HBCDD-containing PS foam waste into manufacturing grade polystyrene
- the full and safe destruction of HBCDD, and
- the recovery of the bromine present in the HBCDD The demonstration plant is planned for construction at the ICL-IP site in Terneuzen (NL);

The PS Loop demonstration plant (with the capability to handle 3 million tonnes of PS waste per year) is aimed to start up end of 2020.