Call for written submissions on the potential options for elements towards an international legally binding instrument to end plastic pollution – Comments from the Styrenics industry

Brussels, January 2023

The undersigned organizations fully share the motivation to develop an international legally binding instrument on plastic pollution. However, we have to draw attention to some inadequate guidance to the Intergovernmental Negotiating Committee (INC), warning against unjustified and inappropriate proposals to consider a ban of Polystyrene (PS) and Expanded Polystyrene (EPS) in packaging. Such proposal was included in the UNEP/PP/INC.1/7 – “Plastics Science” document. Whilst the stated aim of this document is to provide INC with the latest available information on plastic pollution science, it contains an erroneous classification of PS and EPS as “problematic or unnecessary polymers” (Appendix VI – ‘Measures for achieving the strategic goals for systemic change’) and as a result, puts forward an unjustified and inappropriate proposal to consider a ban of these polymers in packaging. This proposal fails to recognize their unique functional and environmental properties, including circular characteristics, as well as the actual recycling achievements. Even if PS and EPS were not recycled in practice and at scale (but please see below), the proposal in Appendix VI would be inconsequential and discriminatory, given that para. 26 observes that the same applies to many other packaging formats.

PS and EPS are Styrenic polymers. Styrenic polymers are the material of choice especially for food contact applications, due to their resistance to damage and heat, providing high-material quality, ensuring consumer safety and reducing food waste, as well as resource use. Each of them offers unique properties, such as versatility, durability, and light weight for a multitude of specific applications. PS is a rigid (not foamed) polymer, commonly used e.g. in dairy packaging (i.e. yogurt pots). EPS is foamed PS, commonly used e.g. in fish boxes and protective packaging of electrical and electronic equipment. Extruded PS (XPS) is another form of foamed PS, commonly used e.g. in food trays for raw meat. PS and XPS packaging waste is generally household waste whose recovery is organized by producer responsibility organizations (PROs), whereas a significant share of EPS packaging becomes commercial waste. Furthermore, EPS and XPS are essential insulation materials to protect the climate by improving the energy efficiency of buildings.

The proposal of a ban is not based on representative, accurate and up to date information, which reflects e.g. the quickly evolving realities regarding recycling in Europe. Relevant statements of the “Plastics science” document are based on an expert survey of members of the Ellen MacArthur Foundation (EMF) New Plastics Economy Global Commitment network, noting that “the survey sample is relatively small” (paras. 25-26). Indeed, whilst they might represent a large part of the overall global packaging market, the signatories to the Global Commitment are not representative of EPS users in particular, as becomes clear even from EMF’s own reporting (by comparison of figures 26 and 27, p. 42).

Contrary to the – not further substantiated – assumption of Appendix VI, the number of polymers on the market does not need to be reduced. On the contrary, the market selects each of them because of its specific properties, including environmental characteristics. As the German and French plastic packaging associations IK and Elipso observed in 2020, only five resins (PET, PP, LDPE, HDPE and PS) are used for 90% of the

plastic packaging placed on the market (p. 11). PS is one of the mainstream plastic packaging materials (besides PET, PE and PP), for which separate waste streams should be established (which has been increasingly happening; please see below), also according to Plastics Recyclers Europe (PRE) in 2019 (p. 5).

Due to its specific structure and applications, EPS is easily recognizable and separable by end users. Furthermore, “styrenic compounds have a unique signal that enables easy and very precise sorting” with existing technologies. PS is uniquely intrinsically circular due to its so-called low-diffusion properties, which means that it absorbs and releases little contaminant during use and recycling, and stability, which allows for many mechanical recycling loops. A range of plastic-to-plastic recycling options have been developed for PS and are being scaled-up, namely food contact mechanical recycling, dissolution, and depolymerization to monomer (without the need for steam cracking). A Life Cycle Assessment (LCA) conducted in accordance with ISO 14040/44 shows the favorable environmental footprint of these options, with high-purity mechanical recycling of PS feedstock from separate collection saving approximately 80% of CO₂ emissions compared to incineration and production of virgin PS, dissolution 75% and depolymerization approximately 75%.

Common PS and XPS packaging are already, or will be, separately collected at scale for recycling across Europe. McKinsey found in a survey of mechanical recyclers across Europe in 2020 that 33% of them process PS (figure 2). In 2022, the Joint Research Centre (JRC) of the European Commission documented a midrange recycling rate of 40% for PS (and EPS; p. 21). As examples at the national level, about two thirds of the PS household packaging waste are sorted for recycling in Germany, according to a report produced in 2021 for the Federal Environment Agency (UBA; p. 132). The French Ministry of Ecological Transition anticipates achieving 100% recyclability in the meat and dairy packaging sectors by 2025, also based on increasing PS recycling (pp. 16 and 23). Corepla, the consortium responsible for the recovery of plastic packaging in Italy has just announced that it will collect and sort all XPS food trays (next to PS) for recycling from 2023, after demonstrating the closed-loop recyclability of XPS food trays in practice. For the Netherlands, a 2021 report for the municipal waste association NVRD observes that PS can be assessed as well recyclable when its chemical recycling starts in 2023 (p. 23). Belgian household packaging PRO Fost Plus has included yogurt pots and XPS trays in its separate collection for recycling. It shows just how economical the recycling of PS and XPS is, by demanding the second lowest fee for PS and XPS among all plastic packaging (after transparent colourless PET bottles) in 2023, based on the so-called net cost principle. Swedish Plastic Recycling will start collecting and sorting all household plastic packaging waste for recycling, including foamed PS, in mid-2023 to 2025. Austria will reportedly include PS yogurt pots and XPS trays in its separate collection for recycling from 2023. Ireland has also included typical (X)PS applications like yogurt pots and meat trays in its separate collection.

EPS, a lightweight, highly versatile material contributes to many societal relevant benefits, such as avoidance of waste and food waste through protective and insulating cushioning. It enables a more sustainable circular economy in Europe. In particular, it is already recycled at scale and in practice – even if applying the definition of the EMF as UNEP apparently does. In Europe, recycling rates for EPS post-consumer packaging waste exceeded 34% already in 2017 and increased to at least 37.3% in 2021. This being in the same range as the JRC estimating app. 40% recycling rate for EPS packaging. In Japan, the recycling rate for post-consumer EPS packaging is 39%, even according to the EMF. Consequently, EPS post-consumer packaging waste is already “recycled at scale and in practice” at the global level and therefore should be mentioned in para. 25, rather than para. 26 of UNEP’s “Plastics Science” document. EUMEPS, Smart Packaging Europe and EPS-IA also have additional remarks on the document, including proof that the
recycling rate for EPS post-consumer packaging waste also exceeds 30% in North America (US and Canada). Furthermore, EUMEPS and EPS-IA have identified methodological errors in the EMF Recycling Rate Survey. Moreover, the European PS and EPS value chains have voluntarily committed to further improving recyclability and recycling rates. As one among many actions, they have contributed to RecyClass, an initiative of PRE, adopting Design for Recycling (DIR) guidelines for PS and EPS containers. A DIR guideline for XPS food trays is in development. According to these guidelines, which are based on existing infrastructure, many common PS and EPS packaging formats can achieve class A (full compatibility).

Eliminating PS and EPS packaging would be ineffective and lead to rebound effects as well as regrettable substitution. The initial focus on eliminating certain polymers has apparently not helped with attaining the objective of the EMF Global Commitment. The EMF recently reported that targets will be missed, also because 16% of signatories’ packaging is flexible packaging “that is increasingly unlikely to meet recyclability in practice and at scale by 2025”. Meanwhile, the actual elimination rate seems to have remained low, possibly due to a combination of the signatories not representing (E)PS users (please see above), the unavailability of more environmentally friendly alternatives (please see below) and a recognition of the recyclability of Styrenic polymers. For example, the EMF recently reported an elimination of only 9 Kt PS globally (p. 16). One important user of dairy packaging has recently discontinued reporting on the elimination of PS. It will continue lowering its reliance on PS (only) where its recyclability outlook is negative while supporting the development of recycling streams including for PS and exploring the use of recycled PS.

Furthermore, polymer-specific bans, which do not comprehensively address the root cause of pollution, often lead to ‘rebound effects’, jeopardizing their environmental objective. For example, the OECD documented in 2021 that a ban of EPS cups in San Francisco had led to a 34% reduction in littered PS cups while littering of paper cups for hot beverages and of [other] plastic cups increased by 141% and 72% respectively (p. 32).

Moreover, there are no more sustainable alternatives to PS, EPS and XPS with the same essential functionality available. For example, an LCA for the German environmental NGO NABU concluded in 2021 that a PS yogurt pot with aluminum lid can be recommended as one (better) alternative to single-use glass (p. 29 et seq.). In a peer-reviewed comparative LCA, PwC concluded that EPS fish boxes performed similar or better than Polypropylene (PP) and cardboard alternatives. A 2019 peer-reviewed LCA by Fraunhofer found that mono-material XPS meat trays have the lowest environmental impact compared to viable alternatives – even without considering the significant, more recent progress with their recycling.

Therefore, we call upon the UNEP Secretariat and the Negotiating Parties not to jump to conclusions regarding purportedly, ill-defined problematic or unnecessary polymers based on unrepresentative, inaccurate and outdated estimates. Rather, the UNEP Secretariat and the Negotiating Parties should seek to develop effective, non-discriminatory and comprehensive yet differentiated measures.

As a concrete example, the European Plastics Pact, which is also inspired by the EMF, originally defined a Roadmap, which included as one of the first objectives to define an “Agreed list of prioritised problematic and unnecessary items to eliminate by Pact members”. However, further discussions resulted in the preferable approach not to compile such a list but to provide a geography and application-specific “decision making flowchart” with differentiated guidance what packaging formats could be problematic.
About us:

**EUMEPS** is the association and voice of European Manufacturers of Expanded Polystyrene. Our members cover the entire EPS value chain from raw material suppliers to EPS converters and recyclers as well as supporting industries including machinery and additive suppliers. Members include individual companies as well as 23 European national associations. This unique representation of the entire value chain ensures that EUMEPS represents both large companies and small- and medium-sized converters and recyclers. Altogether our membership represents more than 1,000 companies, most of them small- and medium-sized enterprises (SMEs), and employs more than 80,000 people.

EPS Industry Alliance is the North American trade association for the Expanded Polystyrene (EPS) Foam industry providing products to the building and construction and packaging sectors.

**Styrenics**, a product group of Plastics Europe. **Plastics Europe** is the pan-European associations of plastics manufacturers with offices across Europe. For over 100 years, science and innovation has been the DNA that cuts across our industry. With close to 100 members producing over 90% of all polymers across Europe, we are the catalyst for the industry with a responsibility to openly engage with stakeholders and deliver solutions which are safe, circular and sustainable. We are committed to implementing long-lasting positive change.

**Smart Packaging Europe** is an initiative of EUMEPS that brings together big and small companies, reflecting the diversity of the European EPS packaging industry.

**Styrenics Circular Solution (SCS)** is the value chain initiative to realise the circular economy for styrenics. The initiative engages the entire value chain in the development and industrialization of new recycling technologies and solutions. It aims to strengthen the sustainability of styrenic products while improving resource efficiency within the circular economy.