

Policy briefing to inform the INC discussions on a Global Plastics Treaty

Product design

Updated version of 15 April 2024

This policy briefing has been developed in consultation with experts and members of the Business Coalition to inform the INC discussions on the revised draft text for the Global Plastics Treaty ([UNEP/PP/INC.4/3](#)) and potential intersessional work ahead of INC-4. It refers to Part II, Section 5.a on ‘Product design and performance’. The document will be updated as needed to provide meaningful input at the different stages of the treaty negotiations and as new insights and resources become available.¹

Introduction

The treaty should oblige governments around the world to implement regulatory measures that will improve the economics and quality of plastics recycling by taking a more harmonised and mandatory approach towards ‘design for recyclability’, and by ensuring that plastic materials are ‘recycled in practice and at scale’. Improving product design and performance, in conjunction with eliminating problematic and avoidable plastics, and scaling up reuse models and recycling infrastructure, would allow industry to shift towards a more circular economy.

Harmonised definitions and approaches towards product design would give a clear signal to the private sector to align their innovation strategies and investment plans accordingly. Businesses should be required to design their products in a way that facilitates their recycling and results in high-value recycled plastics. Recyclers would benefit from receiving a finite set of materials of known quality and composition to be able to sort and reprocess them to be used again.

The Business Coalition believes the intersessional work in this area should focus on establishing:

- [Clear definitions and harmonised criteria on design for circularity](#), distinguishing between design for reduction, design for reuse, and design for recycling of plastic products and packaging
- [Sector-specific design for recycling requirements](#) to ensure that products and packaging containing plastics are ‘designed for recycling’ or ‘technically recyclable’²

¹ This document was developed in close coordination with a [Policy Working Group](#) co-chaired by business representatives, and through a consultation process with the [Members of the Coalition](#), ensuring a high-level of alignment amongst member organisations. However, it does not necessarily reflect in all aspects the position of every single Coalition Member.

² Many voluntary guidelines on design for recycling already exist, mostly focusing on packaging. While they have some differences, they are broadly aligned and would provide valuable input for discussion in this area: [The Consumer Goods Forum Golden Design Rules](#), [The Association of Plastic Recyclers \(APR\) Design Guide](#),

- The type of infrastructure and systems needed for after-use recirculation that match those design for recycling requirements
- A common framework for setting national targets and standards for the collection, sorting, reuse and recycling, reflecting the infrastructure development needs for different plastic applications, as part of the treaty section on 'waste management'
- [A recyclability assessment method](#), including global and regional thresholds to assess whether a 'technically recyclable' plastic product or packaging is also 'recycled in practice and at scale'³

Intersessional work is key to make sure that harmonised design requirements for plastic materials and products match with the setting up and scaling of infrastructure and systems for their after-use recirculation. The Business Coalition is of the view that compliance with globally harmonised standards⁴ is key to ensure that plastics are safe to be used, reused, and recycled as a prerequisite to keep them in the economy at their highest value for as long as possible.

What could the treaty provisions on product design look like?

The revised draft treaty text includes the possibility for a legal obligation of all parties to implement minimum design and performance criteria contained in an annex, including sector- or product-specific criteria by a specified date. It also suggests taking into account relevant international standards and guidelines, and requires governments to establish transparency, labelling and certification procedures.

The Business Coalition encourages member states to further strengthen this core obligation on product design. This should include a technical annex that contains both generic design principles, but also mandatory product design requirements for specific product categories containing plastics. We are also supportive of integrating adequate references to the use of relevant sector- or product-specific standards and guidelines.

In our view, the Global Plastics Treaty should focus on matching product design standards with corresponding systems for the mechanical recycling of plastics as a priority. Other end-of-life pathways should only be promoted as complementary approaches when proven to be effective in diverting plastics that are not mechanically recyclable from landfill,

China National Resources Recycling Association: 'General guidelines for the evaluation of plastics products', [Indian Plastic Pact Design Guidance](#), [Australian Government: National Plastics Plan](#), and [Plastics Recyclers Europe RecyClass Guidelines](#).

³ This 'in practice and at scale' approach is already [used by more than 130 large businesses](#) in the Global Commitment to assess the recyclability of their plastic packaging portfolio in a 2025 timeframe. The recyclability of a packaging design is proven 'in practice and at scale' only if that packaging achieves a 30% post-consumer recycling rate in multiple regions, collectively representing at least 400 million inhabitants. The [EU proposal for a Packaging and Packaging Waste Regulation \(PPWR\)](#) also acknowledges the need to go beyond just design for recycling. It sets an objective for all packaging to be recyclable 'at scale' by 2035, meaning packaging is collected, sorted, and recycled through infrastructure covering at least 75% of the European Union's population.

⁴ TESS/ ISO (2023): [Standards and Related Initiatives in International Cooperation to End Plastic Pollution: Mapping and State of Play](#).

incineration, or waste-to-energy.⁵ As mechanical recycling improves, these standards can be adjusted.

The requirements on product design must include a clear link with the treaty obligations for governments to implement mandatory Extended Producer Responsibility (EPR) policies and to establish systems for reuse, waste collection and recycling. Please note that compliance with mandatory product design requirements under the treaty would have to be applied in complementarity to any legally binding restrictions or phase-outs that the potential treaty provisions on chemicals and polymers of concerns as well as on problematic and avoidable plastic products might establish.⁶

The product design provisions should allow governments to adopt a start-and-strengthen approach, focusing first on plastic products that have high-leakage rates and/or are short-lived, such as packaging or apparel, while adding other sectors and plastic applications over time. Plastic products that will not meet the above-mentioned design requirements and corresponding standards, or that will not be considered to be recyclable in practice and at scale by a certain target date, must eventually be phased out.

What needs to be specified in the form of a technical annex?

A dedicated annex to the treaty should provide governments with additional resources on how to support the implementation of the provisions on product design. The adoption of a common framework on product design, including harmonised definitions and criteria, mandatory sector-specific design requirements, and a common methodology to assess recyclability in practice and at scale, would provide businesses with regulatory certainty to further innovate, and invest in the right infrastructure.

The Business Coalition is of the view that intersessional work on this area could focus on the developing such a technical annex that could be further developed and updated as needed by the governing body of the future treaty. It should cover the following aspects:

- Definitions of key design and performance criteria for plastics and plastic products
- An initial list of sectoral requirements and relevant standards on design for recycling to ensure that priority product applications such as packaging containing plastics are 'designed for recycling' or 'technically recyclable' (see existing resources for intersessional work to build on in [Appendix 1](#))
- Timelines and possible exemptions for compliance with the design for recycling requirements as well as related certification procedures and labelling requirements
- Guidance to match design for recycling requirements to the type of recycling and waste management infrastructure and systems in line with the provisions in Part II.9, including a recyclability assessment method to determine when a 'technically

⁵ [European Commission \(2023\): Environmental and economic assessment of plastic waste recycling](#)

⁶ Please see separate briefings from the Business Coalition on 'Restrictions and phase-outs', 'Reuse Policies' and 'EPR'

recyclable' plastic product or packaging is to be assessed as being 'recycled in practice and at scale' (see existing resources for intersessional work to build on in [Appendix 2](#))

This work needs to be complemented by a common framework for setting national targets and standards for the collection, sorting, reuse and recycling, reflecting the infrastructure development needs for different plastic applications - which should be established as part of the sections on 'reuse and refill' and 'waste management' of the final treaty.

Appendix 1: Resources on definitions, harmonised criteria on design for circularity, and sector-specific design for recycling requirements

The revised draft treaty text includes proposals that each party shall take measures to enhance the design of plastic products, including packaging, and improve the composition of plastics and plastic products, with a view to:

- Reducing demand for and use of primary plastic polymers, plastics and plastic products;
- Increasing the safety, durability, reusability, refillability, repairability and refurbish-ability of plastics and plastic products, as relevant, and their capacity to be repurposed, recycled and disposed of in a safe and environmentally sound manner upon becoming waste; and
- Minimising releases of (micro-) plastics from products into the environment

To deliver on these objectives, plastic products (including packaging) should comply with minimum design and performance criteria. This requires the treaty to establish clear definitions and harmonised criteria on design for reduction, design for reuse, and design for recycling of plastic products and packaging. It is important to note that these criteria should be developed to complement each other to avoid trade-offs: Design for reduction or reuse should not undermine mandatory design for recyclability requirements for example.

The Business Coalition believes that there is existing work on definitions and circularity criteria that the INC can further explore and build on, ideally through the organisation of intersessional work⁷. Definitions will be needed for key terms such as:

- **Design for reduction**⁸, which should address the reduction of unnecessary plastic use, or the reduction of the amount of plastic material used
- **Design for prolonged product use**, which should address the promotion of reusable plastic products, repairable plastic products, including modularity, easy disassembly and availability of spare parts, and durable and upgradable plastic products
- **Design for recycling**, which should address the composition and make-up of products and requiring the compatibility with existing recycling infrastructure: e.g. deciding for a mono-material in the design of a specific product or packaging category

The following table, which could be updated overtime with additional relevant resources, provides an overview on existing design guidelines for circularity which can serve as a starting point for intersessional work:

⁷ Environmental Coalition on Standards (ECOS) (2019) [Applying ecodesign principles to plastics in the circular economy](#)

⁸ There is a potential overlap with the potential treaty provisions on problematic and unnecessary plastic products that needs to be addressed.

		Existing voluntary design guidelines
Design for elimination	Plastic packaging	> Several rules from the Golden Design Rules , launched in 2021 by the Consumer Goods Forum's Plastic Waste Coalition, focus on reducing and eliminating unnecessary or problematic plastic elements: removing problematic elements from all plastic packaging; eliminating excess headspace; reducing plastic overwraps; or reduce virgin plastic in business-to-business packaging
	Other plastic products	> Additional resources will be referenced here in future updates of this policy briefing
Design for prolonged use and reuse	Plastic packaging	> The ISO Standard 18603:2013 specifies the requirements for a packaging to be classified as reusable and sets out procedures for assessment of meeting the requirements, including the associated systems. > PR3 standards for food containers, developed by RESOLVE's Reusable Packaging System Standards Panel, outlines core requirements for aligning reuse systems between companies and brands, and is the most elaborate standard for the design of reuse systems. The PR3 standard includes core requirements on: collection points, containers, digital, return incentives, labelling and education, reverse logistics, and washing.
	Other plastic products	> For energy related products, the European Standardisation Bodies CEN-CENELEC have developed horizontal product design standards covering material efficiency aspects (CEN-CLC/JTC 10), containing generic principles, such as extending product lifetime, ability to reuse components or recycle materials from products at end-of-life, and use of reused components and/or recycled materials in products.
Design for recyclability	Plastic packaging	> Many design for recycling guidelines have been published for plastic packaging. While they have some differences, these guidelines are broadly aligned. They usually suggest the reduction of material diversity, reduction and/or avoidance of pigments, ensuring products are compatible with sorting mechanisms, e.g. by following specific density thresholds: <ul style="list-style-type: none"> • Global guidelines: The Consumer Goods Forum Golden Design Rules, The Association of Plastic Recyclers (APR) Design Guide • Regional and national guidelines: China National Resources Recycling Association: 'General guidelines for the evaluation of plastics products', Indian Plastic Pact Design Guidance, Australian Government: National Plastics Plan, and Plastics Recyclers Europe RecyClass Guidelines⁹.
	Other plastic products	> For the textiles and clothing sector, design-for-recycling is implemented through avoidance of fibre and material blends for fabrics and accessories incl. buttons, or / and design for ease of separation of different materials. Examples of voluntary guidelines and initiatives include the Circular Design Toolkit for Fashion and Textiles from WRAP, the Circular Materials Guidelines from Fashion Positive, and The Jeans Redesign project of the Ellen MacArthur Foundation. > For electronic or electrical equipment, an important principle of the design-for-recycling is dismantlability and separability of components, e.g. metal components from plastics such as housings or cable insulation which are highly likely to include non-flammable additives.

⁹ APR and Recyclass have recently announced to be working on aligning their design guidelines to drive harmonisation of plastic packaging recyclability. This work could provide additional input to inform intersessional work on product design in the INC process to develop a Global Plastics Treaty .

		<p>For instance, the electronic product environmental assessment tool (EPEAT) sets environmental criteria, covering design for end of life > The Healthcare Plastics Recycling Council have developed recyclability guidelines for healthcare products</p>
--	--	--

Examples of how product design requirements for circularity have been embedded in national or regional legislation include:

- Since 2019, implementing measures under the EU Ecodesign Directive and the future EU Ecodesign for Sustainable Products Regulation include minimum requirements to promote repairability and durability of products.¹⁰
- The Plastic Pollution Prevention and Packaging Producer Responsibility Act¹¹ in California includes durability and reuse design guidelines, covering e.g. categorisation of reusable packaging and number of average reuse cycles.
- Extended Producer Responsibility (EPR) schemes in France, Germany and Italy have introduced variations on producer fees according to the recyclability of their products.

Technical requirements on design for recyclability must be complemented by informing consumers about what to do with recyclable packaging, e.g. through labelling requirements and additional communication activities as part of EPR obligations.

¹⁰ Environmental Coalition on Standards (ECOS) (2019) [Applying ecodesign principles to plastics in the circular economy](#)

¹¹ SB54: [Plastic Pollution Prevention and Packaging Producer Responsibility Act](#)

Appendix 2: Resources on recyclability assessment methodology

Aligning on what ‘design for recycling’ or ‘technically recyclable’ means is an important first step. However, if a plastic item ultimately does not get recycled ‘in practice’ and ‘at scale’, the environmental benefits of such product design requirements do not materialise.

The Global Commitment, led by the Ellen MacArthur Foundation, in collaboration with UNEP, has introduced back in 2018 this ‘in practice and at scale’ approach¹², and it is already used by more than 130 large businesses in the Global Commitment to assess the recyclability of their plastic packaging portfolio in a 2025 timeframe. The recyclability of a packaging design is proven ‘in practice and at scale’ only if that packaging achieves a 30% post-consumer recycling rate in multiple regions, collectively representing at least 400 million inhabitants.

Although the concept has been developed for packaging, the Business Coalition believes it is more broadly applicable to other plastic products as well. It is defined as follows:

- ‘At scale’ means that the proof needs to be more than a lab test, pilot, or a small region. It means that recycling of a certain packaging type needs to be proven to work in practice in multiple regions, collectively representing a significant and diverse geographical area and population, so that the practice is replicable.
- ‘In practice’ means that within each of these regions, it is proven that the collection, sorting, and recycling system (from consumer to recycled material) achieves recycling a significant share of all packaging of that type put on the market.

This definition requires the entire system to be proven to work: material choices, packaging design, the manufacturing process, the most likely way of using, disposing and collecting the packaging, and the availability, compatibility, and performance of infrastructure for collection, sorting and recycling. It also implicitly requires the system to work technically, conveniently (if it works in practice and at scale, it must be convenient enough for actors in the system to participate) and economically (if it works in practice and at scale, it must be that the economics are reasonable and that there are end markets for the resulting material).

Other recyclability definitions such as the one developed by APR and RecyClass¹³ could provide complementary or alternative elements for this discussion:

- The product must be made of plastic that is collected for recycling, has market value, and/or is supported by a legislatively mandated program.
- The product can be processed and reclaimed/recycled with commercial recycling processes.

¹² New Plastics Economy Global Commitment: [commitments, vision and definitions](#)

¹³ [What is recyclability? - RecyClass](#)

- The product must be sorted and aggregated into defined streams for recycling processes.
- The recycled plastic becomes a raw material that is used in the production of new products.

The concept of 'proven in practice and at scale' could serve as a starting point for intersessional work on developing a recyclability assessment methodology in the context of the Global Plastics Treaty. It could also be adapted to better reflect the differences in locally available recycling capacities, e.g. via the definition of national or regional thresholds. Some countries or regions have already adopted such definitions of recyclability 'in practice and at scale'.

For example in Germany, a packaging may be described as recyclable according to this definition¹⁴:

- A collection infrastructure must be in place;
- The material must be identified in the commonly applied sorting schemes and match one of the output fractions
- A recycling of the material must be possible at industrial scale, not laboratory-scale processes promised for the future: e.g. PET recycling is widely established whereas EPS and XPS for take-away and retail food packaging are not recycled at industrial scale.
- The material should have a high content of recyclable material. It is a number (in percent) for which the calculation is defined by law, the report of this number is mandatory. Recyclable materials are the materials of a packaging that are to be recovered via the respective material-specific recycling process, e.g. steel, metallic aluminium, PE, (cellulose) fibres, PET, etc. Adhesive labels on packaging lower this value. The content of recyclable material does not correspond one-to-one to recyclability.
- The material should be easy to recycle, thus there should be no recycling system incompatibilities such as laminates or – depending on the recycling system – biodegradable plastics.

Similarly, California's laws SB-343¹⁵ and SB-54 define collection and sorting thresholds for plastic packaging to be considered recyclable, and set recyclability targets for California.

The EU revision of a Packaging and Packaging Waste Regulation (PPWR)¹⁶ provides a good example of a regulation acknowledging the need to go beyond just design for recycling. It sets an objective for all packaging to be designed for recycling by 2030, and to be recyclable 'at scale' by 2035. A similar 'in practice and at scale' approach, with an associated threshold, could be replicated for other plastic streams beyond packaging.

¹⁴ Stiftung [Zentrale Stelle Verpackungsregister 2020](#)

¹⁵ See [CA SB-343](#) and [CA SB-54](#)

¹⁶ See EU [Proposal for a regulation of Packaging and Packaging waste](#), 30th Nov 2023