PLASTICS EUROPE
Enabling a sustainable future

Position Paper

Plastics Europe calls for technology-neutral sustainability criteria for plastics recycling technologies that safeguard European competitiveness and innovation

Plastics Europe urges the Commission to design and implement sustainability criteria that provide investment certainty, enable scale-up of innovative recycling technologies, and safeguard EU competitiveness, while delivering plastics circularity at scale.

Mechanical, solvent-based and chemical recycling each play a complementary role in the management of plastic waste. Applying each technology where it delivers most value maximises circularity and achieves lower greenhouse gas emissions compared to incineration.

Sustainability criteria for plastics recycling technologies under the PPWR should be clear, workable, and technology neutral. The framework should establish minimum eligibility benchmarks rather than rank recycling routes, enabling all recycling technologies to contribute effectively to meeting recycled content targets.

To be credible and implementable, the criteria should be underpinned by transparent governance - including published assumptions, datasets, and system boundaries - and by proportionate data and requirements that limit administrative burden.

Introduction

The Packaging and Packaging Waste Regulation (PPWR) establishes minimum recycled content targets in plastic packaging. The implementation of such targets – which play a crucial role in boosting Europe's circular economy – will be defined by the Commission via secondary legislation, including by setting out sustainability criteria for plastic recycling technologies. This means that Article 7 of the PPWR places the Commission’s forthcoming sustainability criteria at the core of technology assessment, directly shaping how recycling technologies can scale and contribute to meeting recycled content targets under the Regulation. The legal text indicates that the assessment should take into account economic and environmental performance, output quality, feedstock availability, and energy use.

In this context, Plastics Europe cautions against developing sustainability criteria for recycling technologies that would result in a ranking between technologies, as such an approach would not support long term circularity objectives. Instead, the criteria should be clear, implementable, and serve as eligibility conditions that enable recycling technologies to contribute to recycled content

targets. To unlock the investments needed to meet these targets, contributions from all recycling technologies are required, within a framework[1] that enables a workable and coherent application across the value chain.

Risks identified in the development of sustainability criteria

As part of the process, the JRC has been tasked with gathering evidence and stakeholder input, as well as developing a proposal for the sustainability criteria. During the process, industry feedback highlighted several key risks, including unclear system boundaries (e.g. processes, inputs, outputs, transport, etc. included or excluded in the assessment) and methodological choices that may unintentionally disadvantage certain recycling routes where assessment assumptions do not reflect operational realities.

In light of these risks, the development of sustainability criteria for recycling technologies should be guided by the following key principles:

- Clear governance, transparency and stakeholder balance

The policy purpose of the sustainability criteria should be defined upfront, whether as an eligibility benchmark, a reporting tool, or both, and the design should strictly follow that purpose. Stakeholder input should extend beyond facility-level data to reflect broader value-chain realities, including innovative and emerging technologies. Full transparency is essential: system boundaries (e.g. processes, inputs, outputs, etc.), datasets and assumptions should be publicly documented. A structured process should be established to allow periodic updates and correction of identified methodological issues.

- Workable methodology

The assessment approach should be proportionate, delivering fit-for-purpose results without excessive administrative burden, particularly for SMEs and emerging installations. Eligibility should not be based on a single indicator (such as GHG emissions alone), instead multi-indicator approaches must be carefully designed to avoid technology ranking. A realistic minimum data set should be defined, distinguishing essential, auditable parameters from optional inputs. Transport and logistics assumptions should reflect real-world practices, rely on transparent default factors, and allow justified deviations.

- Focus on output quality

Output quality should be linked to specifications for the intended applications and based on compliance requirements. The methodology should account for feedstock variability, recognising their impact on feasible end-uses and actual circularity outcomes. The assessment should consider the value added by the recycling step, such as quality enhancement and the ability to re-enter higher-value applications.

[1] Plastics Europe's Priority Actions to Accelerate Plastics Circularity

- Technology-neutral system boundaries and definitions

System boundaries should be designed to work coherently across all recycling routes, reflecting that recycling inputs and outputs are typically intermediate materials rather than consumer products. Configurations that do not reflect common recycling setups should be avoided (e.g. financial information).

- Alignment with PPWR objectives, investment certainty and competitiveness

Sustainability criteria should support the achievement of PPWR recycled content targets. The framework should be designed to be practical and workable in real market conditions, avoiding criteria that could unintentionally restrict the availability of qualifying recycled materials and thereby trigger exemptions. Overall, the criteria should be outcome-oriented, encouraging investment, value creation and the deployment of multiple complementary recycling technologies, thereby supporting European competitiveness and circularity at scale.

Recommended parameters for defining general sustainability criteria for recycling technologies

Mechanical, solvent-based and chemical recycling technologies address different needs within the plastics' packaging waste management system. Improving product design, separate collection, and sorting increase the share of plastics that can be recycled. Optimising plastics circularity requires recognising the specific technical, economic, and environmental strengths of each recycling technology and applying them to the most suitable waste streams. The combined use of these technologies ensures the best overall societal and environmental performance, particularly regarding greenhouse gas emissions, compared to alternatives such as energy recovery or incineration.

Technical, Economic and Environmental Feasibility

Feasibility is a core parameter that assesses whether a recycling process can be effectively implemented in practice. It requires that recycling technologies are technically and economically viable, ensure high quality recycling[2], and operate within regulatory limits[3] for energy consumption and key environmental indicators (e.g. greenhouse gas emissions, water consumption, etc.) Considering feasibility as part of sustainability criteria ensures that recycling solutions are scalable and effective under real operating conditions.

[2] PPWR Article 3(41): "High-quality recycling means any recycling process which produces recycled materials that are of equivalent quality to the original materials, based on preserved technical characteristics, and that are used as a substitute to primary raw materials for packaging or other applications where the quality of the recycled material is retained."

[3] "Regulatory limits" refers to relevant EU and national requirements, including under the Industrial Emissions Directive 2010/75/EU or equivalent.

- **End-Use Prioritisation and Application-Specific Sustainability Requirement**

End applications should be taken into account, as they determine the safety and performance requirements of materials. This supports a sector-specific approach, recognizing that different applications have distinct functional, safety and circularity requirements, and therefore require product design and material choices to be tailored to their intended use, considering lifecycle and end-use scenarios while minimizing environmental impacts.
Applications such as food contact and cosmetics packaging require the highest standards of hygiene and should therefore be considered of higher importance in sustainability criteria.
Other end applications, e.g. automotive and construction, remain relevant for reasons such as durability, long service life, and performance requirements. Acknowledging these differences ensures that sustainability criteria support circularity while maintaining the necessary functionality of plastic products across sectors.

- **Economic Feasibility and Industrial Scalability**

Sustainability criteria should be designed to enable the scale-up of complementary recycling technologies, not to constrain their contribution. This requires avoiding methodological choices or data assumptions that are formally open but exclusionary in practice. Differences in technology readiness levels (TRLs) and industrial scale should be addressed in a way that preserves investment incentives and does not disadvantage innovative technologies relative to more established solutions. Additionally, economic assessments should consider both investment and operational costs, as well as the ability of the process to deliver consistent results while meeting sustainability requirements.

- **Greenhouse Gas (GHG) Emissions and Non-GHG Emissions**

Plastics packaging recycling can contribute to the reduction of GHG emissions. Wherever applicable, compliance with the Industrial Emissions Directive (IED) is a mandatory baseline for sustainability as the sole binding legal framework for industrial permitting at installation level. To qualify as sustainable, installations must not only hold a valid IED permit and meet Best Available Techniques-Associated Emission Levels (BAT-AELs) for volatile organic compound (VOC) emissions, unintended emissions during operation and waste gas treatment, but also demonstrate a consistent record of regulatory compliance, according to what is established under the IED. Where installations are not within the scope of the IED, its provisions shall serve as guidance for reducing emissions.

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