Calculating recycled content in plastic packaging under PPWR Implementing Act

Executive summary

Our goal is a successful circular economy for plastics and chemicals. Europe needs to expand its recycling infrastructure and markets rapidly and create competitive conditions that enable companies to compete globally and Member States to meet their targets. Cefic welcomes the European Commission's Call for Evidence on recycled-content calculation and verification under Article 7(8) of the Packaging and Packaging Waste Regulation (PPWR) as an opportunity to provide clarity and enable timely decisive action.

The methodology established under the PPWR Implementing Act will directly influence the economic viability of chemical recycling pathways, investment decisions across the European chemical industry, the industry's ability to contribute to mandatory recycled-content targets, and consistency across European circular-economy legislation. Its impact will be global: equivalent calculation, traceability and verification requirements should apply to imported materials when qualifying as recycled materials counted towards EU targets.

Cefic members ask for rapid regulatory certainty for chemical recycling; the fuel-use-exclusion principle; robust traceability, independent verification and credible claims on final products containing recycled content; recognition of solid outputs as potential dual-use outputs where their non-fuel use is demonstrated; and credit transfers between sites under clearly defined and auditable conditions.

The basis of this approach is a verifiable, implementable, economically viable and credible mass balance for recycled content calculations.

Regarding the detailed calculations, a larger share of Cefic members ask for what is called the Certified Sales approach: fuel-use exclusion with certified, volume-based attribution among eligible dual-use outputs that remain on the recycling pathway. A smaller share of the members ask for what is called a Dual-track approach: the calculation methodology under the Single-Use Plastics Directive (SUPD) Implementing Act, including proportional attribution among dual-use outputs while seeking recognition and valorization of excluded fuel-related carbon under other legislation such as Renewable Energy Directive (RED). Cefic presents both views objectively and without prejudice to individual company positions.

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1. Introduction

Europe's transition to a genuinely circular economy requires a viable market for circular and sustainable products. This is particularly important amid high energy prices, economic stagnation and the relocation of industrial production outside the EU. Against this background, Cefic strongly supports the recycled-content targets established under the PPWR, while recognising that appropriate enabling conditions are essential to unlock the investments needed to achieve them. Cefic members share the same overarching objective: to support the continued scale-up of chemical recycling, ensure the successful implementation of the PPWR recycled-content provisions and, in particular, contribute to achieving the recycled-content targets established under the Regulation. There is also broad recognition that regulatory clarity is needed as soon as possible to reduce investment uncertainty and accelerate the deployment of chemical recycling capacity.

Chemical recycling complements mechanical and solvent-based recycling by processing plastic waste streams that cannot be recycled effectively through those routes. Its scale-up requires investment across collection, sorting, pre-treatment, upgrading, conversion and manufacturing. A clear and predictable accounting methodology is therefore necessary, both to support investment and to enable all economic operators, including industrial operators using chemically recycled outputs as feedstock, to comply with the recycled-content obligations established by the PPWR.

The SUPD Implementing Act provides the most recent EU reference point for mass-balance calculation and verification for PET bottles. The PPWR, however, covers a broader range of packaging, polymers, technologies and value-chain configurations. The PPWR methodology should therefore draw on the experience gained under the SUPD while addressing the operational realities of the wider market.

Cefic encourages the Commission to conclude the PPWR methodology without delay. Timely rules are essential because project design, financing and contracting decisions are being taken now, while recycled-content targets will require substantial additional circular feedstock and conversion capacity. The methodology should be technology-neutral, verifiable in practice and capable of application throughout complex, multi-step value chains.

2. Common principles

Cefic members agree on the following principles:

2.1. Timely adoption and harmonised implementation

The Commission should adopt the calculation methodology under the PPWR Implementing Act without delay. The harmonised rules should be applied consistently across Member States to avoid divergent national interpretations. The framework should provide legal certainty for investment while remaining practical for economic operators and competent authorities.

2.2. Fuel-use exclusion

Cefic members accept that recycled content attributed under the PPWR should relate to outputs used for material production. See Chapter 4 on more detailed approaches.

3. Targeted improvements

Cefic members agree on the following targeted improvements:

3.1. Recognition of potential future circular uses of solid outputs

Cefic considers that the exclusion of solid outputs from the definition of dual-use outputs unnecessarily restricts innovation and may limit future circular uses of these materials. Technological developments continue to expand the range of materials that can be recycled and reintegrated into the economy. Certain solid outputs that may currently be directed to energy recovery could, in the future, be recycled into non-fuel applications through technological advancements or new recycling routes. Therefore, solid outputs should not be excluded categorically from the dual-use output category. Their treatment should reflect demonstrated end use. Where a solid output is used entirely as fuel, its applicable factor would be zero and no PPWR recycled content would be attributed. Where a verified share is used as a material or processed further into chemicals, that share should remain eligible. This approach safeguards integrity without predetermining or constraining future circular applications.

Recommendation: Remove the categorical exclusion of solid outputs from the dual-use output category and allow recycled content to be attributed to such outputs only to the extent that their use in non-fuel applications is demonstrated and verified under the applicable calculation and verification methodology.

3.2. Enabling restricted credit transfers to support circular value chains

Cefic considers that the prohibition of credit transfers across sites may create unnecessary inefficiencies within integrated circular value chains. The objective of mass balance accounting should be to facilitate the replacement of virgin fossil feedstocks with recycled feedstocks while ensuring robust traceability and verification. In certain cases, strict site-level limitations may prevent the most resource-efficient deployment of circular feedstocks across interconnected industrial networks. A carefully controlled and highly restricted credit transfer mechanism will maintain environmental integrity while improving operational flexibility and supporting circular economy objectives.

Such a mechanism could be limited to situations where:

- the transferred credit relates to the same product or product category;
- the facilities belong to the same parent company;
- full traceability, auditing and verification requirements are maintained; and
- transfers take place within the European Union.

Limiting such transfers to facilities and sites operating within the European Union would preserve the integrity and traceability of the system while supporting the efficient operation of integrated circular value chains across the internal market.

Recommendation: Permit restricted credit transfers between sites under the conditions above, supported by harmonized documentation, reconciliation and audit requirements.

4. Approaches to the attribution of credits

Certified Sales approach

The Certified Sales proposal, supported by a larger share of Cefic members, introduces a more flexible attribution method for dual-use outputs. It is intended to preserve a greater share of recycled-content credits within integrated chemical recycling value chains by linking attribution to certified volumes that remain on the pathway to chemicals and polymer production. The proposal asks for modifications to the calculation method established in Articles 7(4) and 7(5) of the SUPD Implementing Act:

It retains the fuel-use-exclusion principle and asks for the use of an adapted boiling-point method under Article 7(4) to determine the fraction of waste-derived feedstock that is technically suitable for processing in the relevant steam crackers. It removes the dual-use factor concept and asks for volume-based certified sales and the reallocation of credits among eligible outputs that demonstrably remain on the recycling pathway, subject to appropriate traceability and verification requirements.

The Certified Sales approach avoids the cumulative loss of recycled-content credits that may occur when proportional deductions are applied at several stages of an integrated refinery and petrochemical value chain. It reflects the operational role of refinery upgrading, which is necessary to remove impurities, stabilize crude pyrolysis oil and convert heavier fractions into feedstocks that meet steam-cracker specifications. The approach enables greater use of existing refinery assets, logistics networks and processing capacity, supporting faster and more cost-effective scale-up. By removing the proportional deductions associated with the dual-use factor, it avoids the loss of recycled content credits that may not accurately reflect specific technologies, feedstocks, installations or market outlets. By recognizing a greater share of recycled feedstock demonstrably progressing towards chemical and polymer production, it strengthens the investment case and improves the economic viability of refinery-dependent chemical recycling projects.

Dual-track approach

The Dual-track approach, supported by a smaller share of Cefic members, maintains the calculation methodology adopted under the SUPD Implementing Act as its baseline. It retains the fuel-use-exclusion principle following proportionality approach. It proposes addressing the credits attributable to fuel fractions and excluded from PPWR recycled-content calculations through a separate policy track under the Renewable Energy Directive (RED) and/or the Circular Economy Act (CEA), prioritizing whichever framework offers the most timely pathway for recognition.

The Dual-track approach maintains proportional attribution among dual-use outputs, a method already familiar to Member States that may provide a conservative safeguard against attributing recycled content to fuel production, thereby reducing the risk of misleading claims. The approach facilitates timely adoption of the PPWR Implementing Act because its principal methodological concepts have already been examined through the SUPD process. Complementary recognition under the Renewable Energy Directive and/or the Circular Economy Act improves the overall economics of chemical recycling by assigning value to fuel fractions excluded from PPWR recycled-content calculations.

5. Recommendations to the European Commission

Cefic invites the Commission to:

- adopt the PPWR calculation, verification and certification rules without delay and ensure harmonised implementation across Member States;
- maintain the fuel-use-exclusion principle, while assessing the two approaches described in this paper for calculating and attributing eligible recycled content;
- ensure that any allocation methodology is based on transparent boundaries, auditable records, mass-balance reconciliation, independent verification and safeguards against double counting;
- remove the categorical exclusion of solid outputs from the dual-use output category, while linking eligibility to demonstrated and verified non-fuel use;
- allow restricted credit transfers between facilities and sites under narrowly defined and auditable conditions;
- establish harmonised verification and certification requirements that can operate across complex, multi-step value chains.

6. Conclusion

Cefic and its members are committed to scaling chemical recycling as part of a complementary portfolio of recycling technologies. The PPWR methodology must preserve the integrity of recycled-content claims while enabling investment in the infrastructure needed to meet Europe's circularity objectives. Cefic stands ready to provide further technical input and to work constructively with the Commission and Member States towards timely adoption.

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About Cefic

Cefic, the European Chemical Industry Council, is the forum of large, medium and small chemical companies across Europe, accounting for 1.2 million jobs and 13% of world chemicals production.
On behalf of its members, Cefic’s experts share industry insights and trends, and offer views and input to the EU agenda. Cefic also provides members with services, like guidance and training on regulatory and technical matters, while also contributing to the advancement of scientific knowledge.