



Circularity for Polyolefins

PCEP Position Paper

[PCEP](#) (the Polyolefin Circular Economy Platform), PCEP brings together actors from across the polyolefin value chain, united in our common mission to drive the transition to a circular economy for polyolefins - the most commonly used family of plastics. 71.4% of plastics packaging in Europe is made of polyolefins, accounting for 71% of collected plastic waste. This collected material goes on to be transformed into 84.7% of post-consumer recycled polyolefins, used today in European products across building and construction, packaging, agriculture, automotive, electronics, and other sectors.

Key messages

- PCEP strongly support a polyolefin-to-polyolefin view of circularity.
- Circularity should be an objective for all products and all packaging made from polyolefins. Polyolefins from all industry sectors should be collected and recycled at their end of life and products and packaging should incorporate recycled content where possible.
- Aiming to keep recycled polyolefins at their highest value is an important part of achieving circularity. Maintaining highest value means keeping recycled polyolefins at a quality sufficient to facilitate use in a wide range of applications relative to the virgin polymer equivalent, for as long as possible and whilst ensuring environmental benefit is maximised.
- As with other materials, maintaining value does not necessarily mean that the recycled polyolefin is used back in the same sector or product from which it has come, although this may be the case and should be encouraged where this is required to create sufficient demand.
- The use of recycled content should be encouraged across all sectors, but the market should be free to decide on where it is used. Maintaining maximum value in the recycled polyolefins for as long as possible will facilitate choice for converters.

Introduction

As the recycling rate for polyolefins increases in the EU it becomes increasingly important to create demand for recycled polymer. PCEP believes that circularity for polyolefins, the family of plastics that includes polyethylene (PE) and polypropylene (PP), means producing recycled polymer that can be used as a direct substitute for virgin polyolefins in a wide range of applications.

PCEP is committed to continuing to drive circularity and support the industry to produce secondary raw material of a high quality that reduces fossil based virgin raw material use. The recycled polymer produced should be of a quality to facilitate ongoing circularity.

The draft regulations for packaging and automotive vehicles contain ambitious targets for minimum recycled content and this high level of ambition is welcomed. We recognise that as 39.1%¹ of the plastic used by converters in Europe is in packaging applications and 8.6%¹ in automotive applications that the use of recycled content in these sectors needs to increase.

We believe that all products using polyolefins should be collected and recycled at the end of their life and that all sectors should aim for high levels of ambition. This includes the increased use of recycled content across all sectors.

Circularity for polyolefins

When considering circularity in polyolefins we should recognise polymer and format specific differences in terms of the degree and type of circularity that is required to create demand for recycled plastic.

With LDPE, a large majority is used in film applications. However, demand comes from a wide range of sectors including packaging, construction, agricultural and household. To drive market demand for recycled LDPE, it is not necessarily required that recycled LDPE from packaging gets used to produce new packaging film. Ensuring that most of the recycled plastic produced is suitable for film applications, whatever the sector, is of greater importance.

For HDPE and PP, the demand for both virgin and recycled plastics comes from an extremely wide and diverse range of products and sectors. These polymers are used in the packaging, construction, automotive, electronic, household, and agricultural sectors. They can be found in rigid products and film applications. This being the case, it is natural that recycled HDPE and PP are also used in a wide range of applications also.

Polyolefin packaging-to-packaging recycling may not always provide the best environmental option.

Whilst packaging to packaging circularity is required to create sufficient demand in some plastics, notably for PET as it is the predominant use of this polymer, it may not always provide the best environmental outcome if targeted more broadly across all plastics. This is as producing recycled plastic for use in packaging and other demanding applications often requires more processing, and therefore energy, than for non-packaging applications. Yields of the recycling processes may also be lower which should also be considered.

By creating packaging-to-packaging circularity requirements in legislation, we remove the ability for recyclers to utilise synergies between waste feedstock and the product being made

¹ Plastics - The Facts 2022, Plastics Europe

by convertors. This may be a synergy related to the technical properties of the feedstock or other characteristics, such as colour. The use of recycled content should be encouraged across all applications, including in packaging, but the market should ultimately be free to decide on where it is used.

The important difference between requiring that plastic packaging or products are designed so that *they can be recycled back for use in the same sector* and requiring that they are used in the same sector.

It is important that, wherever possible, the design of packaging and products facilitates its recycling into a secondary raw material that can be used back in the same application to maximise demand and facilitate use. However, overarching regulatory requirements that either the recycled plastic from recyclers is always suitable for use in the same application from which it came (it is processed to a quality specific for that use) or that it must be recycled back only into the same application introduces a risk of increasing the environmental impact of the plastics recycling sector as a whole.

The impact on existing recycling infrastructure.

PCEP commissioned research indicating that whilst nearly 85% of polyolefin recycle originates from packaging only 25% is used back in packaging applications. The construction, agricultural and automotive sectors are all long-term users of recycled PO generated from packaging waste with key convertors and brand owners in these sectors having invested heavily by setting up their own recycling operations. Requiring packaging PO to be used back in packaging would risk the closure of significant recycling capacity installed to supply non packaging markets as their feedstock would in whole or part be diverted to facilities producing packaging. We believe it is better to focus investment on the new capacity required rather than replacing existing capacity already supplying high quality end applications with a significant environmental benefit.

Supporting the development of recycling technologies to achieve circularity.

We support the development of recycling technologies; mechanical, physical, and chemical. Advances in these recycling technologies to produce recycled polyolefins that meet regulatory requirements is particularly important. These will help industry to achieve circularity and allow the use of recycled polymer at scale in all applications, including food contact. A supportive legal framework including recognition of mass balance accounting is a key enabler to allow the use and credible claims of attributed recycled plastic from chemical recycling processes.

Closed Material loop recycling as for other materials

We believe that circularity for polyolefins should be seen in the same way as for other materials. Whilst examples of sector to sector closed loop circularity can be found for other

materials, notably where the virgin equivalent is used in a small number of applications (for example glass bottles) or where the recycled material has a specification particularly suited to a specific application (for example aluminium cans), circularity is more broadly seen as being material to material. We note that:

- Steel packaging is widely used in automotive and construction applications.
- Aluminium packaging is used in cast aluminium products in the automotive sector.
- Glass bottles are used to produce glass insulation wool.
- Wooden pallets are used to produce panel board.
- Papers, including newspapers and magazines, often cascade into lower technical specification end applications such as certain board products and tissue paper.