



PRINCIPLES FOR  
DESIGNING FOR A  
CIRCULAR POLYOLEFIN  
ECONOMY





PCEP'S MISSION IS TO KEEP THE MAXIMUM AMOUNT OF POLYOLEFIN MATERIAL IN THE CIRCULAR ECONOMY, AT ITS HIGHEST VALUE, FOR AS LONG AS POSSIBLE.

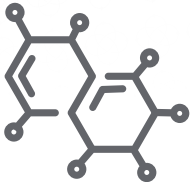
This requires streams of materials that are compatible to be recycled together with the minimum negative impact on the polymer. The aim of these principles is to advance the circular economy for polyolefins by assisting a designer to evaluate which design guidelines are appropriate for circular polyolefins when developing a product.

Design guidelines need to be application specific to reflect functionality, the collection waste stream and sorting technology. These overarching principles assist in identifying the key elements in product design that ensure your product does not significantly impact the properties of the polyolefin in that product's recycling stream.

As a next step PCEP will evaluate the popular design guidance systems against these principles.



## ALL DESIGN GUIDANCE SHOULD BE SCIENCE BASED



Guidance must be underpinned by recycling protocols which are based on widely accepted testing methods<sup>1</sup>.

The recycling protocols underpinning guidance should focus on compatibility with an existing technology, or if not an emerging technology<sup>2,3</sup>.

**Note 1:** Acknowledging that what is a widely acceptable test method can vary by country due to differences in infrastructure.

**Note 2:** Noting that emerging recycling technologies do not always have the collection and sorting systems yet in place to ensure it will actually be recycled.

**Note 3:** If there is no compatible recycling technology, either existing or emerging, then the design cannot today be considered designed for circularity.

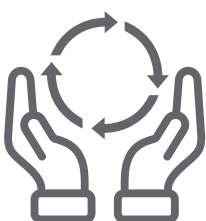
## DESIGN GUIDANCE MUST REVIEW PRODUCT FUNCTIONALITY FROM A CIRCULAR ECONOMY PERSPECTIVE



Seek to follow the circular economy approach of prevent, reduce, reuse, repair/refurbish, remanufacture, recycle and alongside it all regenerate nature. The exceptions are only when an improved circular lifecycle assessment can be demonstrated, for example, a reusable or reduced material item must also be recyclable and a recycled single use item might have a better footprint than a washed reuse item.

- ⊗ Question which functionalities are really necessary. For example, are you over-specifying or over-packaging?
- ⊗ Maximise potential use of recycled polyolefin.

## GUIDANCE SHOULD PROMOTE THE PUREST POSSIBLE STREAMS OF POLYOLEFINS



Where non-PO components are required by the functionalities of the product or expected during the (re)use of product, then the following should be considered:

- ⊗ How will the materials be separated at end of use-phase into streams that are compatible for recycling without reliance on the end consumer.
- ⊗ Acceptable levels of non-PO components are dependent on the existing and emerging recycling technology and infrastructure for recycling that the product can reasonably be expected to go through. This should be clearly reflected in any design guidance.





**PCEP**  
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