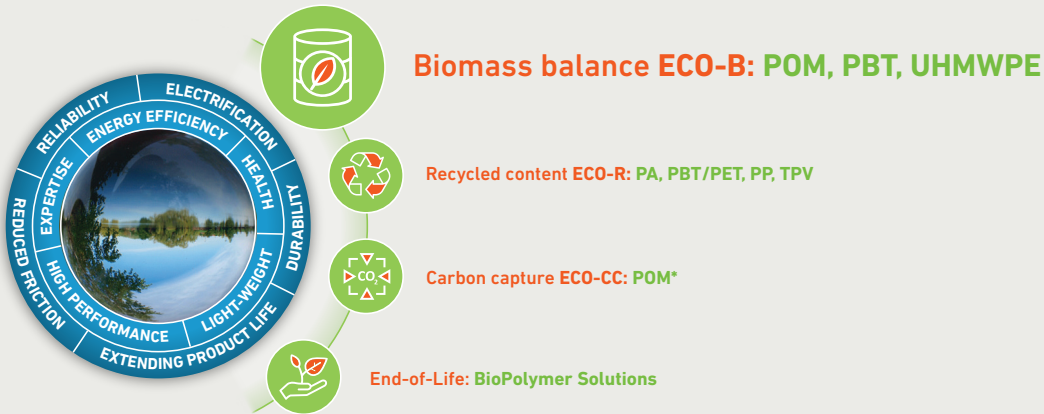




SOLUTION SHOWCASE

CELANEX® PBT ECO-B

Celanese EM Solutions to Circular Economy



* Carbon capture estimated to be operational in late 2023

Material	CO ₂ footprint reduction*	Renewable content	Biomass balance feedstock
Hostaform® POM ECO-B	up to 50%	up to 97%	Bio Methanol
Celanex® PBT ECO-B	up to 50%	up to 40%	Bio BDO**
GUR® UHMWPE ECO-B	> 100%	up to 99%	Bio Ethylene

* Carbon reduction results based on life cycle analysis and available under non-disclosure agreement.

** 1,4-butanediol

Celanex® PBT ECO-B Features

Product	Biomass balance PBT
Availability	EU-manufactured grades: available now
Renewable Content	Up to 40% certified Bio-based content via REDcert mass balance
CO₂ Benefit	Reduction in CO ₂ footprint (GWP – Global Warming Potential) of up to 50% of CO ₂ per KG of PBT polymer

- Mass balance bio-based PBT using waste from renewable feedstocks
- Does not use or contain food or feed crops. Feedstock meeting the REDcert criteria: restricted to waste/residues (according to the ANNEX IXA of the RED) from European sources
- Chemically identical alternative to traditional PBT, **no product requalification required**
- ECO-B option on any existing grade in portfolio produced in Germany

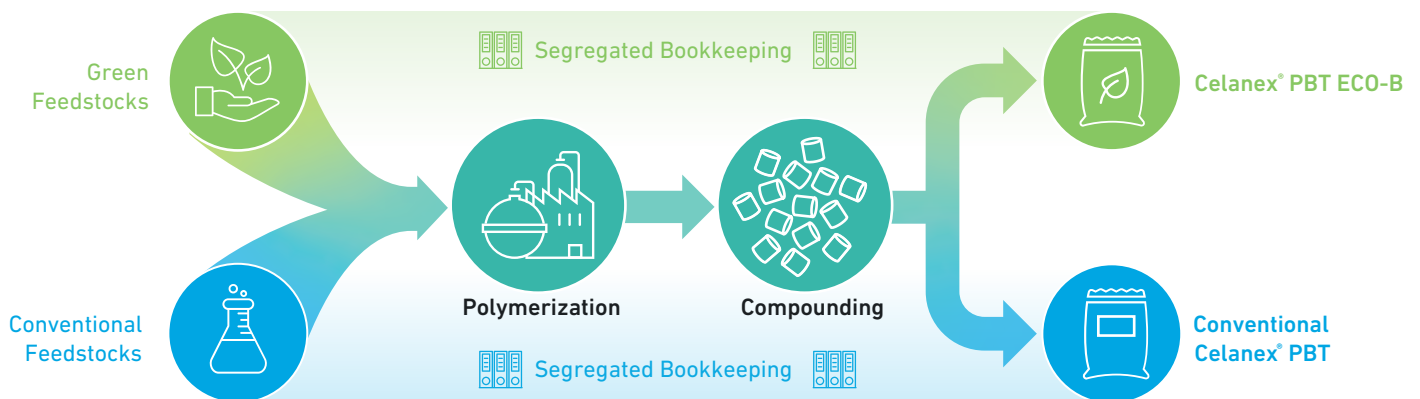


SOLUTION SHOWCASE

Biomass Balance ECO-B Concept

- Bio-based feedstock waste using a biomass balance approach
- Independent 3rd party audited mass balance certification (ISCC+, REDcert²)
- Significant increase in renewable content and reduction of CO₂ footprint vs standard fossil equivalents
- End products in identical quality and properties enable drop-in replacement

MASS BALANCE APPROACH FOR CELANEX® PBT ECO-B



Feedstock:

Mass balance approach means fossil- and bio-based feedstocks are mixed in production but accounted for separately.

Advantages:

- Creates demand for non-fossil feedstocks
- Maintains efficiency and emissions benefits of large-scale production technologies

Bookkeeping:

Celanese system to accurately account and track the feedstocks used to produce equivalent amounts of product

- Accounting process and data certified by REDcert, a leading and widely recognized certification institute



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