



Zytel® PA ECO-R

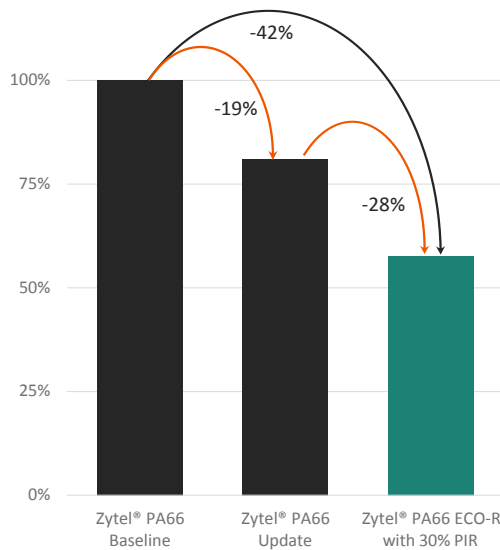


Zytel® PA ECO-R is one product in our expanding portfolio of solutions manufactured with recycled content. Many grades are supported by mass balance or segregated approaches according to customer requirements. These offerings showcase our ongoing commitment to deliver sustainable solutions for diverse market needs.

Polyamides (PA) have become an essential material across many industries due to physical properties that allow it to have multiple uses from automotive and appliance components to other consumer goods applications. Like many other versatile engineering plastics from Celanese, Zytel® PA is available in ECO-R grades that utilize recycled content and offer a lower product carbon footprint (PCF) while demonstrating similar quality and performance properties as its fossil-based formulation.

Zytel® PA ECO-R FEATURES

- Products that contain post-industrial or post-consumer recycled content (PIR or PCR)
- Strict quality standards and controlled blending methods to maximize quality and minimize variability
- Mass balance: ISCC+ certified with identical quality and performance properties that enable drop-in replacement
- Physically segregated: controlled blending to meet minimum quantity in final product



Source: Celanese

PRODUCT CARBON FOOTPRINT IMPROVEMENT FOR Zytel® PA ECO-R

LCA studies are used to track carbon footprint improvements in Celanese processes and those of our suppliers. There was an approximately 19% improvement between baseline Zytel® PA 66 and its updated assessment. Then a 28% improvement is achieved between that update and the ECO-R formulation that includes 30% PIR content – for a total of 42% PCF improvement in the PA66 polymer.

FEEDSTOCK

Celanese offers Zytel® PA ECO-R in PA 6, PA 66 and Ocean-bound PCR formulations. Depending on the product grade and customer specifications, the manufacturing approach can be comprised of either mass balance or segregated PCR and PIR content that is at least 30%¹ of the total and demonstrates up to a 32% PCF reduction.

¹ One ocean-bound PCR grade is a minimum 20% recycled content.

ECO-R Brand	Approach	PCF Reduction*	Recycled Content	Feedstock
Zytel® PA66 ECO-R	Mass Balance	up to 36%	30%	PIR PA66
Zytel® PA66 and PA6 ECO-R	Segregated	up to 38%	min 30%	PIR fibers
Zytel® PA6 ECO-R (Ocean-bound PCR)	Segregated	up to 29%	min 20-30%	PCR fishnets

Source: Celanese

*PCF is based on life-cycle analysis following ISO methodology. Comparisons are on a polymer-only basis against virgin, fossil-based counterpart except where noted otherwise.

Zytel® PA66 ECO-R Mass Balance

Products are drop-in replacements to the standard version and contribute to the displacement of virgin fossil feedstocks. They offer the same performance and process properties, so no requalification is required. The recycled source and allocated content in the finished product are audited and certified according to ISCC+ mass balance approach. Available in select glass-reinforced or toughened grades.

Zytel® PA ECO-R Segregated

Segregated approach for ECO-R products uses controlled blending to incorporate recycled feedstocks into the finished product at the target level. Strict quality standards and processes deliver products that align with expected performance. The range of offerings is growing to meet customer needs across applications and markets.

Zytel® PA6 ECO-R with PCR Fishnets

Ocean-bound plastic is a high concern for marine ecosystems and coastal communities. Celanese is converting used fishnets into high-performance products. This product line supports a circular economy and prevents used fishnets from being abandoned at sea. Product is not available in all regions. Please contact your Celanese representative for more information.

RECORD KEEPING

Celanese employs systems to accurately account for and track the feedstocks used to produce equivalent amounts of products. For the segregated approach, we self-certify. For mass balanced approach, the process and data are verified by ISCC+ to provide third-party validation of sustainable content impact. ISCC+ certification covers the entire value chain and certifies the use of renewable materials.



Zytel® PA delivers high-performance benefits ranging from stiffness to heat resistance that make it suitable across a broad spectrum of end-use industries. Zytel® PA 66 features high mechanical strength, excellent balance of stiffness and toughness, and good high-temperature, electrical, flammability, abrasion and chemical-resistance properties.

Celanese has a robust PA family of solutions and also offers Frianyl® PA ECO-R and Minlon® PA ECO-R.

For more information, contact your Celanese representative.

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