



Sustainability Bulletin

BIO-DERIVED AND RECYCLED CONTENT SOLUTIONS

Sustainability is a high priority for consumer brands bringing more environmentally friendly products to market. To help brands reach their sustainability goals, Formerra is taking the next step in our sustainability journey by offering in demand, bio-derived and recycled-based materials.

WHAT ARE BIO-DERIVED MATERIALS?

Bio-derived or bio-based materials offer more sustainable solutions by utilizing content from corn, straw, and wheat, reducing dependence on fossil fuels. Bio-based materials can meet a variety of performance requirements.

- Low water absorption nylon formulations with up to 47% natural filler from renewable plant sources
- Lower warpage, excellent surface appearance, and colorability

- Dimensional stability and property retention rate after water uptake
- Customized solutions to meet specific performance needs
- Cost-effective options for PA66 glass fiber reinforced materials
- Performance equivalency to PA66 glass fiber-filled formulations using bio-based material

Bio-derived materials reduce carbon emissions and contribute to decreasing dependency on fossil fuel-based raw materials.



WHAT ARE RECYCLED CONTENT MATERIALS?

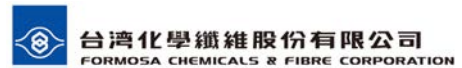
Recycled content materials contain Post-Industrial Recycled Content (PIR) and/or Post-Consumer Recycled Content (PCR). PIR is material derived from scrap reclaimed during the manufacturing process, and PCR is material derived from polymers at the end of their lifecycle. The main difference between the two is PIR is recycled from the original manufacturing process and PCR is recycled after consumer use. Incorporating recycled content in new products reduces waste, yields lower carbon emissions, decreases reliance on percentage of fossil fuel-based materials, and contributes to the circular economy.

APPLICATIONS FOR SUSTAINABLE MATERIALS

Sustainable materials impact overall product life cycle by enabling consumer brands to bring environmentally-conscious materials to a wide variety of industries, including; manufacturing, automotive, retail, industrial, building & construction, among others. Each product offered by Formerra has a unique environmental profile with sustainability characteristics that can be matched to the needs of the consumer brand.



Our Suppliers





BIO-DERIVED

Material	Supplier	Product Name
Acetal POM Homopolymer	DuPont	Delrin® RA
Cellulosics	Eastman	Tenite™
PA	Arkema	Rilsan®, Rilsan® Clear Rnew®
PA	Celanese	Zytel® RS
PC	Covestro	Makrolon® RE
PC + ABS	Covestro	Bayblend® RE
PC + PET	Covestro	Makroblend® RE
PEBA	Arkema	Pebax® Rnew®, Pebax® Clear
PHA	Danimer Scientific	Nodax® PHA
PLA	Danimer Scientific	Danimer Scientific PLA
PPA	Celanese	Zytel® HTN
PVC	GEON Performance Solutions	GEON® BIO
TPC	Celanese	Hytre® ECO B
TPE	Avient	reSound™ OM



RECYCLED CONTENT

Material	Supplier	Product Name	PCR/PIR
ABS	Formerra	VerityPlus™ RC	PIR
ABS	Formosa Chemicals & Fibre Corporation*	Formosa	PCR
ABS	INEOS Styrolution	Terluran® ECO	PCR
HIPS	Formerra	VerityPlus™ RC	PIR
HIPS	Formosa Chemicals & Fibre Corporation*	Formosa	PCR
Long Fiber Reinforced Composites	Avient	Complēt™ REC	PCR/PIR
MBS	INEOS Styrolution	Zylar® Ultra Black	PIR
PA	Avient	Nymax™ PIR	PIR
PA	Lanxess	Durethan® ECO, Durethan® BLUE	PCR/PIR
PA	Nylene	Nylene®	PIR
PBT, PBT + PET	Lanxess	Pocan® ECO	PCR/PIR
PC	Covestro	Makrolon® R	PCR
PC	Formosa Chemicals & Fibre Corporation*	Formosa	PCR
PC + ABS	Covestro	Bayblend® R	PCR
PC + ABS	Formosa Chemicals & Fibre Corporation*	Formosa	PCR
PC + PET	Covestro	Makroblend® R	PCR
PET	Celanese	Rynite® PRC	PCR
PP	Formerra	VerityPlus™ RC	PCR
PP	Formosa Chemicals & Fibre Corporation*	Formosa	PCR
PP	LyondellBasell	Hostacom RE	PCR/PIR
PP	PureCycle	PureFive™	PCR/PIR
PP	RheTech	RheVision, RheTech	PCR/PIR
PP	GEON Performance Solutions	GEON® RESILIENCE® R	PIR
PVC	Dimex	Dimex PVC	PIR
TPE	Avient	reSound™ R	PCR
TPO (POE)	LyondellBasell	Hostacom RE	PCR/PIR
TPU	Dimex	Dimex TPU	PIR

* Formosa Chemicals and Fibres Corporation grades available in select regions only

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