Balrampur bioyug®
The era of bio circularity

Material Specification Sheet

Product Status: Commercial

Balrampur Chini Mills Limited

Date: 05.05.2025
Version & Language: R1 - EN

Introducing Balrampur Bioyug

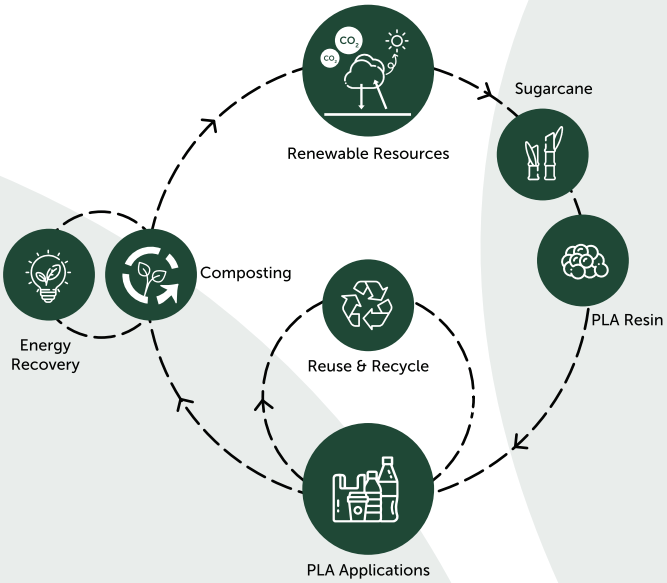
- POLYLACTIC ACID (PLA), THE ULTIMATE ECO-FRIENDLY SOLUTION.

Derived from renewable plant starch, specifically sugarcane, PLA is a 100% compostable biopolymer. It can be anaerobically digested through TAD to produce biogas and fertilizer, offering a closed-loop lifecycle. PLA's adaptability has revolutionized its application across multiple industries, including packaging, textiles, medical devices, and 3D printing.

As a renewable, efficient, and versatile biopolymer, PLA is poised to play a pivotal role in the evolution of sustainable materials. Its ability to balance environmental sustainability with economic viability makes it a key player in advancing the bioplastics industry.

Where Does PLA Fit In?

- PLA is bio-based.
- PLA can biodegrade under industrial compost conditions, i.e. organic recycling.
- PLA is also easy to chemically recycle.
- Some contamination of PLA in the existing mechanical recycling stream does not affect it.
- PLA is one of the lowest cost biopolymers with great hardness and great transparency and the possibility to scale up.



Empowering a circular economy through PLA bioplastics, reducing waste and promoting a regenerative future.

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How is PLA made?

SUGARCANE TO PLA

Sugarcane → Sugar → Fermentation → Purification of Lactic Acid → Lactide → Ring Opening Polymerization of Lactide → PLA Pellets → PLA Application → Thermophilic Anaerobic Digestion → Biogas or Biofertilizer

THE PLA VALUE-CHAIN

Sugarcane → Sugar → PLA → Compound → Convert → Brand Owner → Retail → Consumer

Balrampur Chini Mills Limited

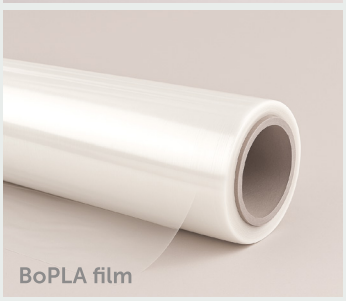
PLA is widely used in various applications across Industries




FOOD SERVICE

TEXTILES

BIOMEDICAL



PACKAGING

PLA ALTERNATIVES TO SINGLE USE PLASTICS (SUP)

3D INDUSTRIAL APPLICATIONS

Balrampur Bioyug Typical Properties

BCML Grades	Physical Properties							Mechanical Properties		
	Appearance	Density	Moisture	Monomer Content	MFI	D-content	Melting Temperature	Glass Transition Temperature	Tensile Strength	Elongation at Break
		(g/cm3)	(%)	(%)	(190°C/ 2.16kg)	(%)	ºC	ºC	(Mpa)	(%)
BIOYUG-30U	Semitransparent for all	1.24	≤0.04	≤0.3	30	<1%	175	60	50	≤5
BIOYUG-30M		1.24	≤0.04	≤0.3	30	2%	165	60	50	≤5
BIOYUG-10U		1.24	≤0.04	≤0.3	10	<1%	175	60	50	≤5
BIOYUG-10M		1.24	≤0.04	≤0.3	10	2%	165	60	50	≤5
BIOYUG-4U		1.24	≤0.04	≤0.3	4	<1%	175	60	50	≤5
BIOYUG-4M		1.24	≤0.04	≤0.3	4	2%	165	60	50	≤5
BIOYUG-4K		1.24	≤0.04	≤0.3	4	4%	155	60	45	≤5

Bioyug Portfolio

BIOYUG_30U: High-performance resin with high melting point, medium flow, and recrystallization capabilities, ideal for temperature-resistant injection moulding and non-woven applications

BIOYUG_30M: Resin with medium melting point, medium flow, suitable for opaque products such as high temperature-resistant and thin-wall injection molding

BIOYUG_10U: Crystalline with high melting point, medium flow, suitable for heat-resistant extrusion or fiber spinning, excellent high-gloss appearance, useful for processing filament and staple fiber textiles

BIOYUG_10M: Resin, medium melting point, medium flow, suitable for injection molding, staple fiber and spun-bond non-woven.

BIOYUG_4U: Crystalline resin, high melting point, low flow, suitable for extrusion molding, for heat-resistant straws or sheets.

BIOYUG_4M: Resin, moderate melting point, low flow, which can be crystallized after production, suitable for straws, sheets, 3D printing and other applications.

BIOYUG_4K: Low melting point, low flow, suitable for blown film, coating, 3D printing and high transparency product processing.

Packaging

- Ton bags
- 25kg small packages
- Aluminium foil packaging with nitrogen-filled protection for optimal preservation

Storage Conditions

- Store in a well-ventilated, dry warehouse
- Maintain ambient temperature below 40°C
- Keep away from ignition sources and direct sunlight

Transportation

- Handle with care: Avoid using sharp tools like iron hooks during loading/unloading.
- Protect from elements: Keep away from direct sunlight and rain.
- Prevent contamination: Do not mix with sand, metal pieces, or hazardous materials.
- Maintain safe temperature: Ambient temperature during transport should not exceed 40°C.

Advantages of Using Bioyug

MADE IN INDIA

Our Made-in-India solution supports Govt. of India initiatives like Atmanirbhar Bharat & Swacch Bharat Abhiyaan, offering a sustainable alternative to traditional plastics, while empowering Indian farmers.

BIO BASED

Made from renewable biomass, sugarcane.

COMPOSTABLE

PLA is 100% compostable in industrial facilities & through thermophilic anaerobic digestion can be converted into biogas, biofertilizer or energy.

LOW CARBON FOOTPRINT

PLA (Polylactic Acid) usage significantly reduces carbon footprint as it is derived from renewable biomass sources and requires less energy to produce compared to traditional fossil based traditional plastics.

RECYCLABLE

Designed for end-of-life solutions through mechanical or chemical recycling, enabling the recovery and reuse of materials.

Ready to explore PLA Biopolymer solutions? Reach out to our business development team to discover how we can help.

Write to us at

pla.sales@bcml.in

Or visit

www.balrampurbioyug.com

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PLA Manufacturing Plant - (Upcoming)
Kumbhi Chini Mills, Village & Post - Kumbhi,
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UP, India - 262 804
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