

Polymer Add (Thailand) Co.,Ltd.

Office - 106, Chalarempriakiat, Lor 9, Soi 22, Yak 5, Nongbon, Prawet, Bangkok, Thailand 10250

Factory - 188/3, Moo 8, Tambon Bangpu Mai, Amphoe Muang Samut Prakan, Samutprakan, Thailand 10280

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TECHNICAL DATA SHEET

POLYLACTIC ACID (PLA) - CRYOGENICALLY GROUND POWDER

PRODUCT IDENTIFICATION

Parameter	Description
Product Name	Polylactic Acid (PLA) - Cryogenically Ground Powder
Chemical Name	Polylactic Acid / Polylactide
CAS No.	9051-89-2
HS Code	3907.70.00
Repeating Unit	(C ₃ H ₄ O ₂) _n
Product Form	Cryogenically ground thermoplastic polymer powder
Base Resin	Commercial PLA resin; properties are grade-dependent

TYPICAL PHYSICAL PROPERTIES

Property	Typical Base-Resin Value / Description	Test Method
Appearance	White to off-white powder	Visual
Density	1.24 g/cm ³	Literature value
Melt flow index, 210 deg C / 2.16 kg	23 g/10 min	ISO 1133-A
Melt flow index, 190 deg C / 2.16 kg	10 g/10 min	ISO 1133-A
Stereochemical purity	>=99% L-isomer	Base-resin supplier method
Residual monomer	<=0.3%	Base-resin supplier method
Water / moisture	<=400 ppm in original resin; finished powder by agreement	Coulometric Karl Fischer
Melting temperature	175 deg C	DSC
Glass-transition temperature	60 deg C	DSC

TYPICAL PARTICLE SIZE - DEMONSTRATED TRIAL RESULT

Particle-size parameter	Typical value	Test method
D50	36.77 microns	Laser diffraction
D90	64.62 microns	Laser diffraction
D97	79.29 microns	Laser diffraction
D99	90.38 microns	Laser diffraction
D100	116.47 microns	Laser diffraction

Particle-size values are typical results from a demonstrated trial and are not guaranteed limits for every PLA resin. Achievable PSD depends on the selected PLA grade, feed condition and agreed processing parameters.

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PROCESS DESCRIPTION

PLA pellets are cryogenically cooled and mechanically size-reduced under controlled conditions. Cryogenic cooling limits heat build-up, softening and smearing during grinding. Custom particle-size targets are evaluated through grade-specific trials before commercial production.

REFERENCE MECHANICAL AND THERMAL PROPERTIES OF BASE RESIN

Property	Typical value	Test method
Tensile modulus	3,500 MPa	ISO 527-1
Tensile strength	50 MPa	ISO 527-1
Elongation at break	<=5%	ISO 527-1
Charpy notched impact, 23 deg C	<=5 kJ/m2	ISO 179-1eA
Heat-deflection temperature, amorphous	60 deg C	ISO 75-1; HDT B
Heat-deflection temperature, crystalline	105 deg C	ISO 75-1; formulation and processing dependent

Mechanical and thermal values refer to the selected base resin in a moulded test specimen and do not describe the loose powder itself. Typical values are not specifications.

POTENTIAL INDUSTRIAL APPLICATIONS

Application Area	Potential Use
Thermal bonding	Hot-melt, lamination, textile and nonwoven binder-powder evaluation
Coatings	Fusion-coating and controlled surface-texture development
Additive manufacturing	Powder-bed and specialised 3D-printing development, subject to flowability testing
Polymer compounding	Controlled dry blending and distribution in polymer or additive systems
Porous materials	Fugitive or pore-forming polymer phase in selected composite and ceramic systems
Specialised formulations	Application-specific fine PLA powder where a controlled PSD is required

PACKAGING, STORAGE AND HANDLING

Item	Recommendation
Packaging	Moisture-protective lined packaging; pack size by commercial agreement
Storage	Store sealed in a cool, dry place away from heat, moisture and direct sunlight
Handling	Avoid dust generation. Use suitable ventilation and personal protective equipment
Pre-drying	Drying conditions must follow the base-resin manufacturer's recommendation

PRE-DRYING BEFORE MELT PROCESSING

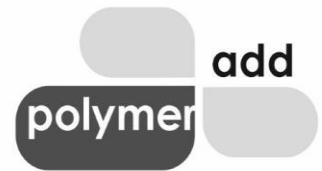
Where the powder will be melt processed, dry for approximately 4-6 hours at 100 deg C using dry air with a dew point of -40 deg C or lower. Reduce moisture below 250 ppm and preferably below 100 ppm. Excess moisture can hydrolyse PLA during melt processing and reduce final mechanical performance.

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REGULATORY AND APPLICATION STATUS

This TDS describes a cryogenically ground PLA powder for industrial evaluation. Food-contact, cosmetic, pharmaceutical, medical or other regulated suitability is not implied. Personal-care microbead applications are excluded unless expressly authorised in writing by the base-resin manufacturer and separately validated.

DISCLAIMER

The information is provided in good faith for technical guidance. Typical values are not guaranteed specifications and may vary with the base resin and production lot. Customers must determine product suitability, processing conditions and regulatory compliance for their intended application.

Month of Creation: September 2026 | Review: September 2028

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