Poly(lactic-co-glycolic acid) (PLGA)

CAS # 26780-50-7

Product In Focus

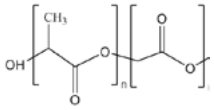
EXIM-INDIS INC
EVOLVING CHEMISTRY

Poly(lactic-co-glycolic acid) (PLGA)

INTRODUCTION

Poly(lactic-co-glycolic acid) (PLGA) is a biodegradable synthetic copolymer comprising of repeating units of lactic acid and glycolic acid. It is widely used in pharmaceutical and biomedical fields due to its excellent biocompatibility and ability to degrade into non-toxic metabolites. Unlike non-degradable polymers, PLGA undergoes controlled hydrolysis in the body, making it ideal for sustained drug delivery and resorbable medical devices. Aliphatic polyester copolymer (lactide:glycolide ratios such as 50:50, 65:35, 75:25). Hydrolytically degradable into lactic acid and glycolic acid. Typically supplied as white to off-white solid (powder, pellets, or granules).

KEY DETAILS

Primary CAS No	26780-50-7 Commonly used for general, random copolymers of lactide and glycolide used in FDA-approved drug delivery and tissue engineering.
Specific CAS No	34346-01-5 Frequently used for Poly(DL-lactic acid-co-glycolic acid) acid-terminated copolymers.
Structure	It is synthesized via ring-opening co-polymerization of glycolide and lactide.
Applications	It is widely used in microspheres, surgical sutures, and drug delivery systems.
Structure	

MANUFACTURE

Typically manufactured by ring-opening copolymerization of lactide & glycolide monomers under controlled conditions using catalysts (e.g., tin-based catalyst), allowing precise control over molecular weight and copolymer composition.

APPLICATION

Pharmaceutical

- Controlled drug delivery systems (microspheres, nanoparticles, depot injections)
- Long-acting injectable formulations (e.g., sustained-release therapeutics)
- Implantable drug delivery devices
- Vaccine delivery systems (adjuvant/carrier matrix)

Medical devices

- Resorbable sutures and surgical meshes
- Orthopedic fixation devices (pins, screws, plates)
- Tissue engineering scaffolds
- Wound healing materials

It is widely used in biomedical systems because it:

- provides controlled and sustained drug release
- degrades into biocompatible, metabolizable products
- eliminates need for surgical removal (bioabsorbable)
- allows tunable degradation kinetics based on composition

Veterinary

- Long-acting injectable formulations for animal health
- Biodegradable implants for sustained drug delivery

Cosmetic / personal-care

- Used in advanced dermal delivery systems(encapsulation of actives)
- Explored in biodegradable microcarrier systems for skincare formulations

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SPECIFICATIONS

Test	Unit	Specification
Appearance	-	White to off-white solid (powder, granules, or pellets)
Identification	a) By IR or NMR	The infrared absorption/NMR spectrum of the test sample should be concordant with the reference spectrum of PLGA
	b) By inherent viscosity / GPC	Molecular weight distribution consistent with specification
Lactide:Glycolide Ratio	mol %	As specified (e.g., 50:50, 65:35, 75:25)
Inherent Viscosity	dL/g	Typically 0.2 – 1.0 (grade dependent)
Residual Monomers	%	NMT 0.5
Moisture Content	%	NMT 5.0
Residual Solvents	ppm	Complies with ICH limits
Glass Transition Temperature (Tg)	°C	Typically 40 – 60 (grade dependent)

PACKING

HDPE containers / fiber drums with inner polyethylene liner

STORAGE

Store in tightly sealed containers in a cool, dry place (2–8 °C recommended). Protect from moisture and prolonged exposure to heat to prevent hydrolytic degradation.and contamination.

COMMERCIAL NOTE

PLGA is available in multiple grades with tailored molecular weight and lactide:glycolide ratios to meet specific drug delivery and biomedical requirements. Custom specifications, technical data, and SDS can be provided upon request.

Exim-Indis offers Poly(lactic-co-glycolic acid) (PLGA) on commercial scales and welcomes enquiries. No matter the quantity you need, our exceptional quality and service will make Exim-Indis your supplier of choice. If you need any additional information or SDS, please contact us.

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