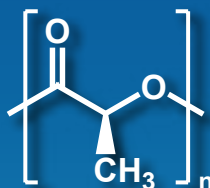


New

MATERIALS



Biodegradable Polymers for Biomedical Materials Research: High-Molecular-Weight Poly(lactic Acid)



Poly(L-lactic acid)

(Mw=ca. 100000, ester terminated)

5g / 25g [P3401]

Poly(L-lactic acid)

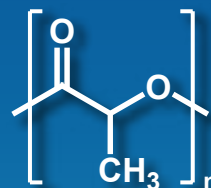
(Mw=ca. 200000, ester terminated)

5g / 25g [P3402]

Poly(L-lactic acid)

(Mw=ca. 300000, ester terminated)

5g / 25g [P3403]



Poly(DL-lactic acid)

(Mw=ca. 100000, ester terminated)

5g / 25g [P3398]

Poly(DL-lactic acid)

(Mw=ca. 200000, ester terminated)

5g / 25g [P3399]

Poly(DL-lactic acid)

(Mw=ca. 300000, ester terminated)

5g / 25g [P3400]

Advantages

- Biodegradable thermoplastic polyesters derived from corn-based lactide
- Suitable for research on biocompatible medical devices
- Ultimately decomposed by soil microorganisms into H₂O and CO₂

Poly(lactic acid) (= PLA) is a representative biodegradable polymer with a wide range of reported applications.¹⁻³⁾

In addition to applications as a green plastic aligned with the SDGs, PLA is also known to be used in surgical sutures, implant materials, and medical films, since it is degraded in vivo into non-toxic water and carbon dioxide.

Poly(L-lactic acid) (= PLLA) is a semi-crystalline polymer and is suitable for applications requiring mechanical strength, whereas poly(DL-lactic acid) (= PDLLA) is amorphous and exhibits a faster degradation rate.

Both polymers are soluble in halogenated solvents such as chloroform.

For research on physical properties and degradation behavior, we offer a lineup of 6 products with different molecular weights.

Typical Properties of Poly(lactic acids)	Value ¹⁾
Melting Temperature: T_m (°C)	140 - 210
Glass Transition Temperature: T_g (°C)	50 - 75
Crystallinity (%)	5 - 35
Tensile Modulus (GPa)	3.2
Flexural Strength (MPa)	70

The property values are literature values and are not guaranteed. These products are for research purposes only.

- References 1) L. Ranakoti *et al.*, *Materials* **2022**, *15*, 4312. <https://doi.org/10.3390/ma15124312>
 2) C. Shi *et al.*, *Chem. Rev.* **2024**, *124*, 4393. <https://doi.org/10.1021/acs.chemrev.3c00848>
 3) N. K. Kalita *et al.*, *Curr. Opin. Green Sustain. Chem.* **2023**, *40*, 100751. <https://doi.org/10.1016/j.cogsc.2022.100751>

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