



3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone 800-325-5832 • (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

Product Information

Poly- γ -benzyl-L-glutamate

Product Number **P 5386**

Storage Temperature -20 °C

Product Description

CAS Number: 25014-27-1

Molecular weight: 70 - 150 kDa (by viscosity)

Specific rotation: + 15° (10 mg/ml, chloroform, 25 °C)¹

This product is a polymer of glutamic acid in which the γ -carboxyl groups have been benzoylated. The molecular weight range is not determined for a given lot, only the average molecular weight is given. The polydispersity value (M_w/M_n) is in the range 1 - 1.2. For high MW polymers, this value approaches 1; for the low MW polymers, it approaches 1.2.

This product exists in a highly ordered, well-defined, α -helical conformation held intact by intramolecular hydrogen bonds.² The α -helical structure renders this polymer as a relatively stiff rigid rod and this structure is retained when the polymer is dissolved in many solvents, including dimethylformamide, benzene, toluene, methylene chloride, and chloroform.^{3,4,5} In contrast, this product has a random coil conformation in trifluoroacetic acid (TFA) and dichloroacetic acid (DCA), and in mixed solvents containing TFA and DCA.

This product is routinely used for the modeling of conformational changes of biopolymers and modeling of α -helical polypeptides. It is also used in chromatography as a stationary phase for the resolution of racemic materials. This product can also be used for the microencapsulation of pharmaceutically active hydrophobic liquids. It improves the shatter resistance of plastics when blended with poly(vinyl chloride), poly(vinyl acetate), or their copolymers.^{4,5,6}

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in chloroform (50 mg/ml).

References

1. J. Am. Chem. Soc., **78**, 941 (1956).
2. Poly(-benzyl-L-glutamate) and Other Glutamic Acid Containing Polymers, Block, H., Gordon and Breach Science Publishers (New York, NY: 1983), p. 58.
3. Daly, W. H., and D. Poche., Tetrahedron Lett., **29**, 5859 (1988).
4. Polymer Handbook, 3rd ed., Brandrup, J., and Immergut, E. H., eds., John Wiley and Sons (New York, NY: 1989).
5. McKinnon, A. J., and Tobolsky, A. V., Structure and properties of poly- γ -benzyl-L-glutamate cast from dimethylformamide. J. Phys. Chem., **72(4)**, 1157-1161 (1968).
6. DeLong, L. M., and Russo, P. S., Macromolecules, **24**, 6139 (1991).

CMH/RXR 9/07

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.