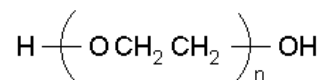


81253 Polyethylene glycol 6'000 (PEG, Carbowax, Macrogol)



CAS number: 25322-68-3

Product Description:

Molecular formula:	H(OCH ₂ CH ₂) _n OH, average value of n = 136.1
Average Molecular weight:	6000 (5000-7000) g/mol
Melting Point:	55 – 60°C (59°C)
Solubility:	H ₂ O 50 mg/mL at 20°C, complete, colorless
pH:	5.5-7.0 (25°C, 50 mg/mL in H ₂ O)

This product is designated as BioUltra for Molecular Biology grade and is suitable for applications in the molecular biology, special if high purity is required. It has been analyzed for low contaminating impurity and the absence of nucleases. Polyethylene glycol (PEG) is a condensation polymer of ethylene oxide and water. PEGs are susceptible to oxidative degradation in the presence of air. Minimizing the exposure of PEG to elevated temperatures and/or exposure to oxygen, or addition of an antioxidant can limit the amount of degradation. PEGs do not hydrolyze or deteriorate upon storage. PEGs do not support the growth of moulds. PEG is incompatible with phenol and may reduce the antimicrobial action of other preservatives. Both penicillin and bacitracin are rapidly inactivated by PEG. PEG is also incompatible with sorbitol, tannic acid and salicylic acid and may affect the integrity of plastics.¹

Applications:

PEG has been used in many different applications. A single-step method is described for the activation of PEG for binding to polypeptides and proteins.² PEG has been used in the precipitation of proteins.³ PEG is also used as a fusogen to obtain hybridomas for monoclonal antibody production (Induces cell hybridization).^{4,5}

Preparation Instructions:

PEG is soluble in water (approximately 630 mg/ml, 20°C). PEGs are also soluble in many polar solvents such as acetone, alcohols and chlorinated solvents. They are insoluble in nonpolar solvents such as hydrocarbons.

Storage/Stability:

Aqueous PEG solutions are stable at room temperatures. The PEG bonds are not hydrolyzed under these conditions. PEG can be dissolved in warm water at 80-90°C with no adverse effects. Sterile filtration of the solution is recommended using a 0.45 µm filter, initially. Although autoclaving of PEG in saline solutions has been reported⁶, it is not recommended.



References:

1. Martindale The Extra Pharmacopoeia, 30th ed., Reynolds, J. E. F., ed., The Pharmaceutical Press (London, England: 1993), p. 1384.
2. Veronese, F.M., et al., Surface modification of proteins. Activation of monomethoxy-polyethylene glycols by phenylchloroformates and modification of ribonuclease and superoxide dismutase. *Appl. Biochem. Biotechnol.*, **11**, 141-152 (1985).
3. Ingham, K.C., Precipitation of Proteins with Polyethylene Glycol. *Meth. Enzymol.*, **182**, 301-306 (1990).
4. Harlow, E., and Lane, D., PEG used as a fusogen to obtain hybridomas for monoclonal antibody production, ed., *Antibodies: A Laboratory Manual*, Cold Spring Harbor, NY (1998), 211-213
5. Davidson, R.L., and Gerald, P.S., Induction of mammalian somatic cell hybridization by polyethylene glycol *Meth. Cell Biol.* 15, 325-338 (1977)
6. de St.Groth, S.F., and Scheidegger, D., Production of monoclonal antibodies: strategy and tactics. *J. Immunol. Methods*, **35**, 1-21 (1980).

Precautions and Disclaimer:

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

The vibrant M and Sigma-Aldrich are trademarks of Merck KGaA, Darmstadt, Germany or its affiliates. Detailed information on trademarks is available via publicly accessible resources.
© 2018 Merck KGaA, Darmstadt, Germany and/or its affiliates. All Rights Reserved.

The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the US and Canada.

