

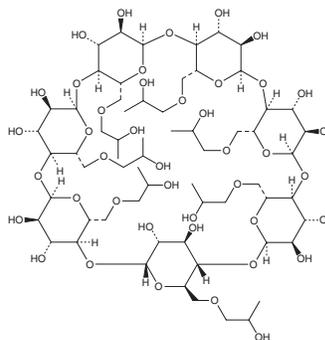
PRODUCT INFORMATION



2-Hydroxypropyl-β-cyclodextrin

Item No. 16169

CAS Registry No.: 128446-35-5
Formal Name: 2-hydroxypropyl ethers β-cyclodextrin
Synonym: HP-β-CD
MF: (C₆H₉O₅)₇(C₃H₇O)
FW: 1,541.6
Purity: ≥95%
Supplied as: A crystalline solid
Storage: Room temperature
Stability: ≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

2-Hydroxypropyl-β-cyclodextrin (HP-β-CD) is supplied as a crystalline solid. A stock solution may be made by dissolving the HP-β-CD in the solvent of choice. HP-β-CD is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide, which should be purged with an inert gas. The solubility of HP-β-CD in these solvents is approximately 30 mg/ml.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of HP-β-CD can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of HP-β-CD in PBS, pH 7.2, is approximately 50 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

HP-β-CD is a cyclic oligosaccharide containing seven D-(+)-glucopyranose units that is widely used to improve the aqueous solubility of various compounds, especially those containing a phenyl group.¹⁻³ The circular arrangement of its glucose units produces a torus-shaped ring configuration in which the CH₂ groups and ether linkages of the molecule face the hollow interior, resulting in a nonpolar, hydrophobic cavity and a polar, hydrophilic exterior. When combined in solution with other compounds, the nonpolar aromatic portions of that compound interact with the nonpolar interior of the HP-β-CD molecule, thus isolating the aromatic portion of the molecule from the water and thereby increasing its aqueous solubility.^{1,4} HP-β-CD is a mixture containing HP-β-CD with variable hydroxypropyl group substitutions.

References

1. Katageri, A.R. and Sheikh, M.A. Cyclodextrin a gift to pharmaceutical world review. *Int. Res. J. Pharm.* **3(1)**, 52-56 (2012).
2. Shewale, B.D., Sapkal, N.P., Raut, N.A., *et al.* Effect of hydroxypropyl-β-cyclodextrin on solubility of carvedilol. *Indian J. Pharm. Sci.* **70(2)**, 255-257 (2008).
3. Loftsson, T., Jansook, P., and Stefjansson, E. Topical drug delivery to the eye: Dorzolamide. *Acta Ophthalmol.* **90(7)**, 603-608 (2012).
4. Rao, V.M., Nerurkar, M., Pinnamaneni, S., *et al.* Co-solubilization of poorly soluble drugs by micellization and complexation. *Int. J. Pharm.* **319(1-2)**, 98-106 (2006).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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