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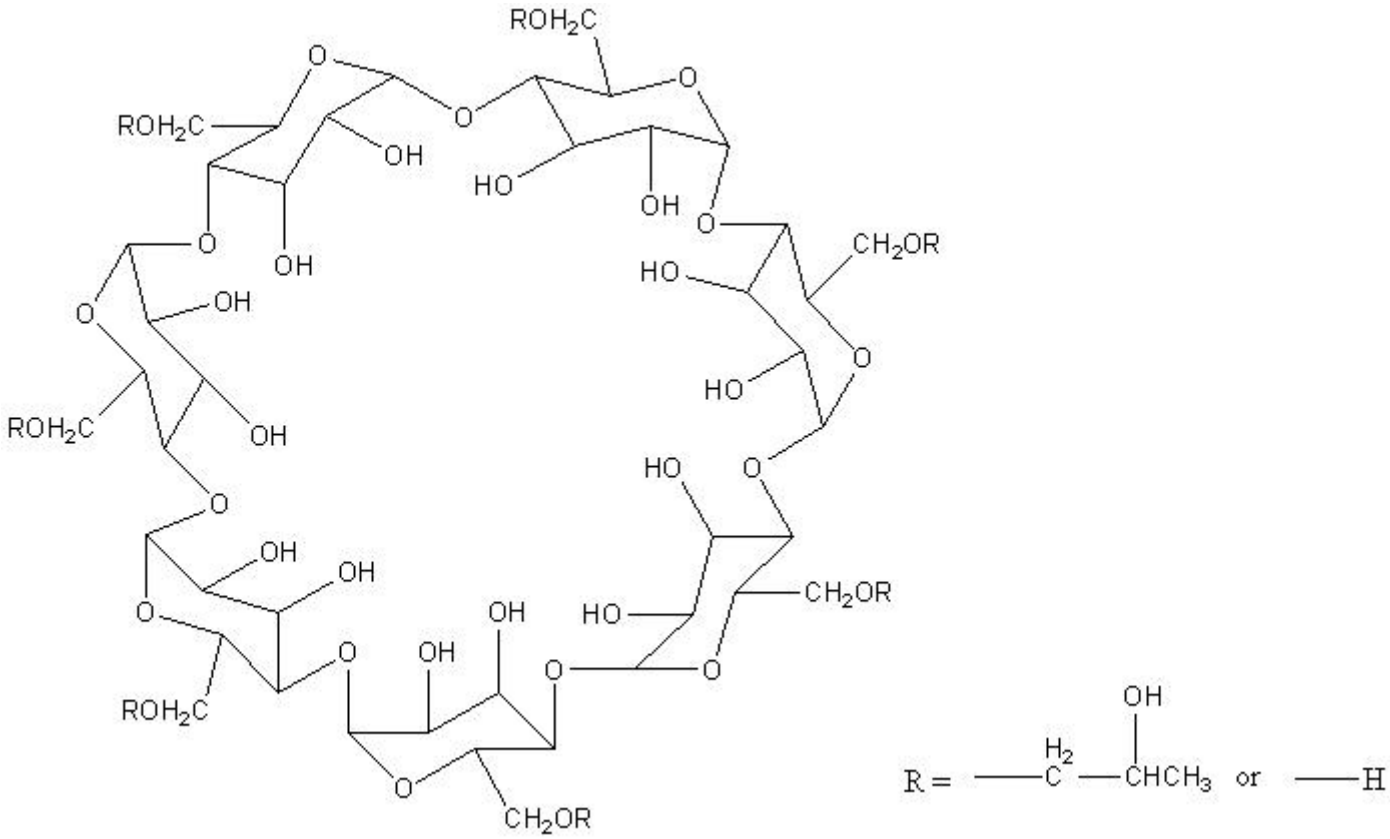
TECHNICAL INFORMATION

Catalog Number: 153540
2-Hydroxypropyl-beta-Cyclodextrin

Structure:



Molecular Formula: $(C_6H_{10}O_5)_7(C_3H_6O)_{5.5}$
Molecular Weight (Ave.): 1454 (anhydrous)
CAS #: 94035-02-6
Synonyms: HBC; 2-Hydroxypropylether-b-cyclodextrin
Description: Non-toxic solubilizers. The solubility of drugs increases linearly with the concentration of 2-Hydroxypropyl-b -cyclodextrin in aqueous buffer.[1] The formation of drug/cyclodextrin complexes is a rapidly reversible reaction and complexes exist both in solution and crystalline states. Solutions of many such complexes may be lyophilized to produce freely soluble powders which may be compressed into tablets. Bio-effects are only slightly affected by cyclodextrin complexation. Cells in serum supplemented medium can be grown in up to 1-2%. In serum-free medium, concentrations of 0.5-1% are acceptable. Hydroxypropyl-b-cyclodextrin has been found to be non-toxic in mice and rabbits.[2] 2-hydroxypropyl-g-cyclodextrin with its 8 glucose units, has a slightly larger cavity and can accomodate larger substrates than the beta form. The use of cyclodextrins in receptor binding assays in not recommended.
Solubility of Various Compounds:

Compound	**Solubility in water (mg/ml)**	**Solubility in 45% w/v HBC**	**Solubility Enhancement (%)**
Acetazolamide	0.70	17	24
6,7-ADTN HBr	0.56	5.6	10
R-(-)-N-Allylnorapomorphine HBr	0.30	1.6	5.5

p-Aminoclonidine HCl	0.43	1.4	3.3
(±)-p-Aminoglutethimide	0.16	1.2	7.5
R-(+)-Atenolol	<0.01	6.0	>600
S-(-)-Atenolol	<0.01	6.0	>600
Butaclamol	0.25	5.4	21
Chloramphenicol	2.50	53	21
4'-Chlordiazepam	<0.01	1.5	>150
Chlorthalidone	0.12	8.0	67
CNQX	<0.10	0.8	7.5
Codeine Sulfate	3.30	4.3	1.3
CV-1808	<0.07	3.6	54
8-Cylclopentyl-1,3-p-sulfophenylxanthine	<0.20	0.8	4
Dexamethasone	<0.01	24	3000
Diazepam	0.05	5.0	100
Digoxin	0.07	52	743
7,9-Dimethyluric acid	<0.01	0.4	>36
7,9-Dimethylxanthine	0.75	1.4	1.9
3,5-Dinitrocatechol	0.17	2.8	16.5
1,3-Dipropyl-8-p-sulfophenylxanthine	0.43	6.8	16
DNQX	<0.10	1.9	7.6
(S)-ENBA	<0.09	2.8	>30
Estradiol	<0.01	21	5250
FG-7142	0.07	1.8	27
Furosemide	0.07	1.0	14
L-Glutamic acid HCl	3.30	8.7	2.6
L-Glutamic acid diethyl ester HCl	3.30	8.7	2.6
Glutethimide	0.26	6.0	23
Haloperidol	<0.20	0.4	2.3
Hexahydro-sila-difenidol HCl	<0.01	5.7	>570
Hexahydro-sila-difenidol HCl, p-fluoro analog	<1.50	>14	>9.3
Hydrocortisone	0.28	24	86
6-Hydroxydopamine HBr	3.30	5.3	1.6

3-Hydroxymethyl-b-carboline	<0.20	0.4	2.5
Indomethacin	0.02	3.0	150
Iodotubercidin	<0.16	0.9	>5.8
Isobutylmethylxanthine	0.30	3.2	10
Methotrexate	0.04	8.0	178
2-Methylthio ATP	1.50	3.3	2.2
Naltrindole HCl	0.10	2.2	22
Quabain	12.20	61	5
Papaverine HCl	<0.25	4.0	>16
2-Phenylaminoadenosine	<0.01	3.6	>360
Phenytoin	0.02	7.0	350
R-(-)-PIA	0.30	1.6	5.3
S-(+)-PIA	1.20	5.0	4.2
Pirenperone	<0.19	0.8	>4.1
Prochlorperazine	0.25	2.3	9.2
Progesterone	0.02	39	2600
DL-(±)-Propranolol	3.30	8.0	2.4
(-)-Quisqualic acid	0.52	1.3	2.5
Ranitidine HCl	1.80	7.0	3.9
Ro 15-4513	<0.01	0.8	>80
Ro 20-1724, PDE inhibitor	<0.01	5.0	>500
Ro 41-0960, COMT inhibitor	<0.70	1.0	>1.4
Ryanodine	<0.14	1.3	>9.3
SKF-83566	<0.01	>14	>1400
Spiperone HCl	0.20	2.0	10
Sulpride	<0.21	8.0	>38
Testosterone	0.03	30	1154
Tetrahydrocannabinol	<0.01	2.0	455
Veratridine	<1.00	>2.0	>2
Vitamin A	0.01	5.0	500
Vitamin D	<0.23	8.0	>35

Solubility: Soluble in water (50 g/100 ml). Solutions may be obtained by stirring 30 minutes at room temperature. Alternatively,

sonication with cooling may be employed. Solutions may be stored for several weeks at room temperature. Good solubility in methanol, ehtanol, pyridine, dimethyl sulfoxide, dimethyl formamide.

References:

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