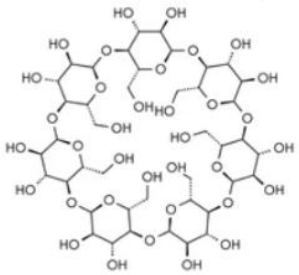
Cyclodextrin (β-CD) Inclusion Complex

After the poorly soluble drug forms an inclusion complex with β-CD, the drug molecule is contained in the β-CD molecule cavity, which has a high degree of dispersion. Or the powdering of liquid drugs increases the solubility of insoluble drugs and improves the bioavailability of drugs. **CD Formulation** provides suitable solutions, customized product services and product test data. If your drug is poorly soluble or insoluble, please do not hesitate to contact us in time.



beta-cyclodextrin

Our Services

CD Formulation has a professional team of pharmaceutical experts, which can customize cyclodextrins, water-soluble cyclodextrin derivatives and hydrophobic cyclodextrin derivatives according to customer requirements. At the same time, provide guidance on the composition and inclusion of the drug with cyclodextrin in the client's drug development program.

The verification methods for cyclodextrin inclusion complexes are as follows:

Microscopy and scanning electron microscopy, thermal analysis, UV-visible spectrophotometry, phase solubility, infrared spectrophotometry, thin-layer chromatography, nuclear magnetic resonance, fluorescence spectroscopy, X-ray diffraction, circular dichroism.

The Things to Keep in Mind When Wrapping are:

1. Organic drugs should meet one of the following conditions: the number of atoms in the drug molecule is greater than 5; if it has fused rings, the number of fused rings should be less than 5; the molecular weight of the drug is between 100-400; the solubility in water is less than 10 g/L, and the melting point is low At 250 ℃. Most of the inorganic drugs should not be included with cyclodextrins.

2. The polarity or association of the drug can affect the inclusion. Because the cyclodextrin cavity is a hydrophobic region, the non-polar lipid-soluble drug is easy to enter and is included, and the formed inclusion complex is less soluble: polar The

drug can be embedded in the hydrophilic region of the cavity opening. The formed inclusion complex has high solubility. Hydrophobic drugs are easier to be included, and non-dissociated drugs are easier to be included than dissociated drugs. Self-associative drugs often disassociate first and then embed into cyclodextrin cavities.

3. The inclusion complex is competitive. The inclusion complex is in equilibrium with the drug in the aqueous solution. If other drugs or organic solvents are added, the drug in the original inclusion complex can be replaced.

Advantages of Cyclodextrin (β-CD) Inclusion Complexes

- Improve drug stability.
- Powdering deliquescence, volatile or liquid drugs.
- Increase the solubility of insoluble drugs.
- Improve drug bioavailability.
- Reduce the toxic side effects and irritation of the drug, and cover up the bad smell.
- Adjust drug release rate.

Service Flow