Hot Melt Extrusion Excipients

Hot melt extrusion is the process by which the bulk drug is dispersed at the molecular level of the matrix to form a solid solution, thus facilitating the development of low solubility products. Hot melt extruding agent helps dissolve, bond, stabilize and control release. We have professional production equipment and management experience, can customize different specifications and quality requirements of hot melt extrusion, and produce the corresponding products according to customers' prescriptions.

Process Flow of Hot Melt Extrusion

Hot melt extrusion process, the API and the carrier, and a variety of complementary makings after joining extruder, in under the action of mechanical force, tank heating, first of all, the material melt, then scattered mixed make active pharmaceutical ingredient and various auxiliary materials evenly dispersed in carrier, small molecules will be further degradation and remove moisture from the material, in the end by the extruder screw extrusion materials from the nose. After the material is extruded from the extruder, it can be cooled in a variety of ways. Finally, crush, cut or rewind as required.

Application of Hot Melt Extrusion in the Field of Pharmaceuticals

Improve Drug Solubility and Bioavailability

The biopharmaceutical classification system (BCS) classifies drugs into 4 categories based on their solubility in water and permeability in the intestines. The solubility of category II and category IV drugs is poor, and 40% of the drugs are currently on sale. 80% to 90% of the drugs under research are classified into categories II and IV, so the improvement of the solubility of such drugs is of great significance for improving their absorption. At the same time, the BCS II and IV APIs that are in the development stage will continue to grow, as shown in the figure below.

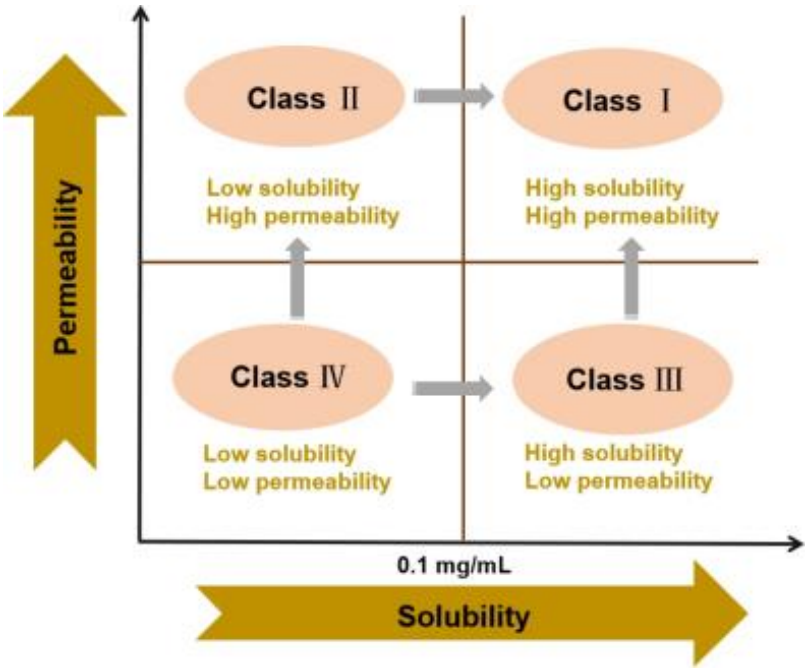

Fig. 1 Classification of the Biopharmaceutical Classification System (BCS)

Preparation of Sustained and Controlled Release or Delayed Release Formulations

As an increasingly mature drug delivery system, sustained and controlled release preparations have been widely used in drug development. However, the development of slow and controlled release formulations of poorly soluble drugs still faces many problems that need to be solved urgently. The emergence of HME technology has greatly promoted the application of solid dispersions in the field of sustained and controlled release formulations.

Parenteral Reservoirs and Local Drug Delivery Systems

The traditional method for preparing skin, mucous membranes or wound care membranes-the salivation method, requires the use of organic solvents or aqueous solutions, so it is not suitable for drugs that are sensitive to moisture.

Preparation of a Targeted Release Formulation

HME can choose polymers and excipients flexibly, and has been applied to the research of targeted formulations.

Mask the Bad Taste of the API

Through HME technology, API and polymer form intermolecular interactions, thereby embedding bitter drugs in the carrier material, thereby achieving the

effect of taste masking, and successfully avoiding the direct contact of bitter drugs with the patient's taste buds.

CD Formulation is a high-tech company integrating R&D, production and sales of pharmaceutical excipients. The company insists on taking science and technology as the guide, and constantly develops new products to inject new vitality into development. If you are interested in our products, welcome to contact us for more detailed information.

Source:
https://www.formulationbio.com/products/hot-melt-extrusion-excipients.html