Suppository Bases

There are two types of suppository bases, grease-based and water-soluble bases.

Background of Suppository Bases

Suppository bases refer to substances that can be used to prepare suppositories. Suppository refers to a solid preparation made of medicine and a suitable matrix with a certain shape for intracavitary administration. Suppositories are solid at room temperature. After being inserted into the cavity, they can quickly soften and melt or dissolve in the secretion fluid at body temperature, and gradually release the drug to produce local or systemic effects. In the early days, people believed that suppositories only had local effects such as lubrication, astringency, antibacterial, insecticidal, and local anesthesia. Later, it was discovered that suppositories could still absorb drugs through the rectum to exert systemic effects and avoid the first pass effect of the liver.

Suppository Bases Requirements

Suppository bases upon request:

1. It should have proper hardness at room temperature, it will not deform or break when inserted into the cavity, and it will be easy to soften, melt or dissolve at body temperature;

2. Does not react with the main drug, and does not affect the content determination of the main drug;

3. It is non-irritating, non-toxic and non-allergenic to mucous membranes;

4. Stable physical and chemical properties, not easy to mold during storage, and does not affect the bioavailability;

5. It has the properties of wetting and emulsifying, and can be mixed with more water.

Type of Suppository Bases

The commonly used bases for suppositories are divided into grease bases and water-soluble bases.

Grease Bases

(1) Cocoa butter: cocoa butter is homogeneous and diversified. There are three crystal forms of α, β, and γ. Among them, the two crystal forms of α and γ are unstable, the melting point is low, and the β type is stable.

(2) Semi-synthetic or fully-synthetic fatty acid glycerides: commonly used are semi-synthetic coconut oil esters, semi-synthetic lime oil esters, and semi-synthetic palm oil esters. Fully synthetic fatty acid glycerides include propylene glycol stearate and the like.

Water-soluble and Hydrophilic Bases

(1) Glycerin gelatin: this strain is made of gelatin, glycerin and water. It is elastic, not easy to break, and does not melt at body temperature, but it can be slowly dissolved in the secretion. The dissolution rate of the drug can be changed with water, gelatin and glycerin. The ratio of the three is different. The higher the content of glycerin and water, the easier it is to dissolve.

(2) Polyethylene glycols: a type of hetero-chain polymer formed by the polymerization of ethylene oxide. Easy to be deformed by moisture absorption.

(3) Non-ionic surfactants: classified by hydrophilic groups, there are two types: polyoxyethylene type and polyol type. Polyoxyethylene type, also known as polyethylene glycol type, is the product of the addition reaction of ethylene oxide and compounds containing active hydrogen; polyol type nonionic

surfactants are ethylene glycol, glycerol, pentaerythritol, sorbitol and An ester formed from an organic substance containing multiple hydroxyl groups such as sucrose and a higher fatty acid. The hydrophilic group in the molecule is a hydroxyl group. Since the hydroxyl group is weakly hydrophilic, it is often used as an emulsifier.

Source link: https://www.formulationbio.com/products/suppository-bases.html