

Adsorbents, Desiccants and Humectants



Adsorbents and desiccants are usually placed in pharmaceutical packaging and are mainly used to control the content of moisture, oxygen, heptahydrate and impurities. Humectants are most commonly used in pharmaceutical formulations to control the moisture content of pharmaceutical dosage forms. **CD Formulation** provides customers with a variety of pharmaceutical excipients. Our pharmacy or other professional researchers and experimenters are constantly developing new product solutions. We can customize related products for customers, and also provide customers with drug development and research solutions.

Commonly [Adsorbents, Desiccants and Humectants](#)

Adsorbents

Activated carbon is made by carbonizing and activating carbon-containing raw materials such as charcoal, fruit shells, and coal.

Activation methods can be divided into two categories, namely, agent activation method and gas activation method. The chemical activation method is to add zinc chloride, potassium sulfide and other chemicals to the raw materials, and heat them in an inactive atmosphere for carbonization and activation. The gas activation method is to heat the activated carbon raw material in an inactive atmosphere, usually after removing the volatile components below 700 °C, pass in water vapor, carbon dioxide,

flue gas, air, *etc.*, and react within the temperature range of 700 to 1200 °C. Its activation.

Activated carbon characteristics:

- Specific surface area and pore structure of activated carbon.
- Activated carbon has a huge specific surface area and rich pore structure. The specific surface area can reach 500~1700m²/g, in which the small pore volume is generally 0.15~0.9 mL/g, the surface area accounts for more than 95% of the specific surface area, the transition pore volume is generally 0.02~0.1mL/g, and the surface area accounts for the percentage of the specific surface area. About 5%, while the macropore volume is generally 0.2~0.5 mL/g, the surface area is very small, only 0.5~2m²/g.

Desiccants

Desiccants refer to a substance that can remove moisture from moist substances. Commonly used desiccants are calcium chloride. Calcium chloride desiccant is a kind of high-efficiency adsorption material, the main components are calcium chloride and gelatin starch. Chemically reacts water molecules with calcium chloride to absorb moisture from the surrounding environment and transform it into a gel to achieve an adsorption effect, thus completely eliminating any possibility of leakage. The common calcium chloride desiccant can reach 300%. The moisture absorption rate is 8-15 times that of ordinary desiccants.

After completely absorbing moisture, it will not evaporate. After ordinary desiccant absorbs moisture, when it encounters high temperature, the water vapor will evaporate and re-enter the air. Because calcium chloride desiccant can fuse water vapor and calcium chloride into a gel, it is not easy to evaporate. It can be used in an ambient temperature of -5 °C~90 °C. The active ingredient of calcium chloride desiccant has good stability and is difficult to react with other substances except water. It can be used in almost all marine environments.

Humectants

Polyols-this type of ingredient is easy to obtain, can be manufactured in large quantities, is inexpensive, and has high safety. The disadvantage is that the moisturizing effect is more easily affected by the humidity of the environment. When the relative humidity of the environment is too low, the effect of retaining moisture will decrease. In addition, to achieve the purpose of high-efficiency moisturizing, it is limited by its own mechanism, which is difficult to achieve.