

VACUUM FREEZE DRYER

การทำแห้งแบบเยือกแข็งด้วยวิธีระเหิด
ภายใต้สุญญากาศ



- » Fruits
- » Vegetables
- » Pharmaceutical
- » Prepared Food
- » Agricultural Products
- » Meat and Poultry

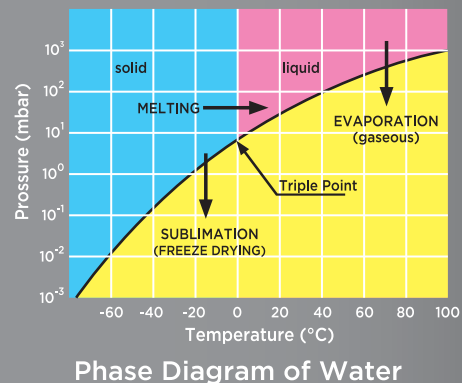


ABOUT US

With excellent vacuum technology expert team and many year experiences in freeze drying system for foods, fruits, vegetables, pharmaceutical, biological, nutrition and healthcare products, we are proud to present the high technology with good quality product and high efficient operation mode as well as reasonable price for you **“Vacuum Freeze Dryer”**

Vacuum freeze drying is an ideal material dehydration method, having substance for maintaining original active ingredients and nutrition composition, after drying, color, flavor, taste and shape will not be changed, but also with many years, it can still keep the original flavor and its active ingredient after regain water. At present, this technology has been widely used in the pharmaceutical industry, biological research, nutrition and healthcare products, food and other industries.

PRINCIPLE OF VACUUM FREEZE DRYING



FREEZE DRYING PROCESS CONSIST OF 3 STEP

- 1 Pre-Freezing**
 - The product exhibits the desired crystalline structure.
 - The product is frozen below its eutectic temperature.
- 2 Primary drying**
 - The partial pressure of the vapor surrounding the product must be lower than the pressure of the vapor from the ice, at the same temperature.
 - The energy supplied in the form of heat must remain lower than the product's eutectic temperature (the highest allowable product temperature during the conditions of sublimation.)
- 3 Secondary drying**
 - The partial pressure of the vapor rising from the product will be at its lowest levels.

THE ADVANTAGES OF VACUUM FREEZE DRYING TECHNOLOGY

1. As freeze-dried at low temperature, it is suitable for many heat-sensitive material such as proteins, microorganisms & etc, the nature will not be changed and the biological activity no lost. Therefore, it is widely used in medicine industry.
 2. Drying at low temperature, the volatile components in the material will seldom be lost. So it is suitable for some chemical products, pharmaceuticals and food drying.
 3. In the freeze drying process, the microbial growth and the role of the enzyme can not be effected, so they can maintain the original character of the raw material.
 4. As material drying under the frozen state, the volume is almost unchanged. It can maintain its original structure, so concentration will not occur.
 5. After drying, the product is porous spongy shaped. It will be dissolved rapidly and completely after adding water. And it could almost restore the original character immediately.
 6. As drying process is in vacuum, it has little oxygen in the drying chamber, so a number of easily oxidized materials have been protected.
 7. 95-99% of the water can be removed, so that the freeze dried product can be stored for a long time without deterioration.
- Therefore, freeze dryer is widely used in the pharmaceutical industry, food industry, research and other sectors.

VACUUM FREEZE DRYER FOR FOOD INDUSTRY

BATCH TYPE

For Small production

Capacity: 100 - 750 Kg. (water)/Batch

Condenser Capacity: 200 - 1500 Kg. (water)/Batch

Shelf usable area: 10 - 75 m²

Temperature of condenser (cold trap): -55 °C (up to - 65 °C)

Material: SUS304



TROLLEY TYPE

For Mass production

Capacity: 500 - 2000 Kg. (water)/Batch

Condenser Capacity: 1000 - 4000 Kg. (water)/Batch

Shelf usable area: 55 - 205 m²

Temperature of condenser (cold trap): -55 °C (up to - 65 °C)

Material: SUS304



VACUUM FREEZE DRYER FOR PHARMACEUTICAL

LAB SCALE TYPE

For R&D purpose

Capacity: 2 - 25 Kg. (water)/Batch

Condenser Capacity: 4 - 35 Kg. (water)/Batch

Shelf usable area: 0.2 - 2 m²

Temperature of condenser (cold trap): - 55 °C to - 120 °C

Material: SUS316L



MASS SCALE TYPE

For Mass Production

Capacity: 10 - 500 Kg. (water)/Batch

Condenser Capacity: 20 - 1000 Kg. (water)/Batch

Shelf usable area: 1 - 50 m²

Temperature of condenser (cold trap): ≤ -75 °C

CIP + SIP and Hydraulic System

Material: SUS316L



VACUUM FREEZE DRYING EQUIPMENTS

PRODUCT FEATURES

- High Quality
- Low maintenance cost
- Long life service
- Easy to operating and maintenance
- Equipped with famous brand of vacuum pump, compressor & circulation system from Europe and Japan



APPLICATION FOR INDUSTRY



Fruit

Food

Vegetable

Herb



Nutrition
and Health Care

Pharmaceutical

Biological

WHY US?

1. We are specialist in Vacuum Technology.
2. We are one - stop service for vacuum pump, refrigeration system and vacuum packaging machine.
3. Chamber built - in stainless steel.
4. Good quality & nice looking machine.
5. Accepted for food and pharmaceutical standard requirement.



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