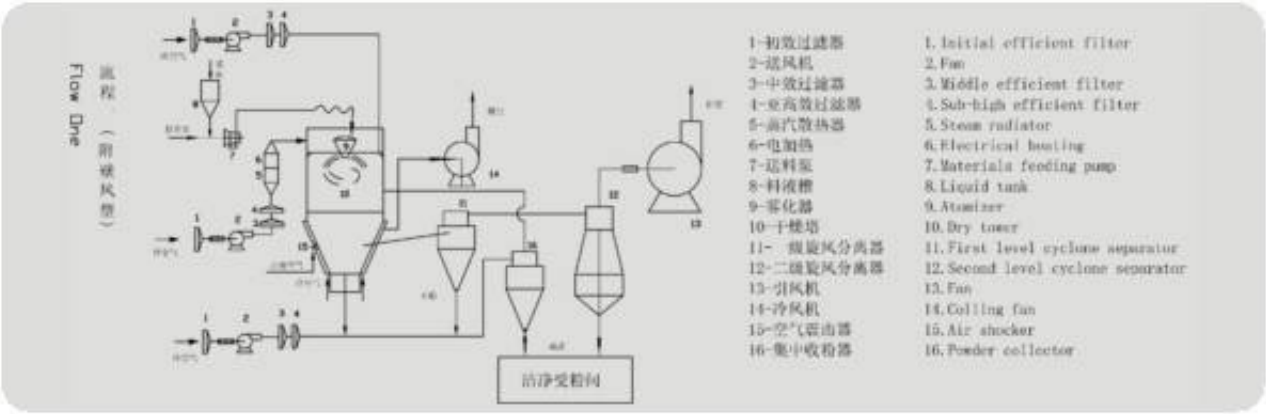
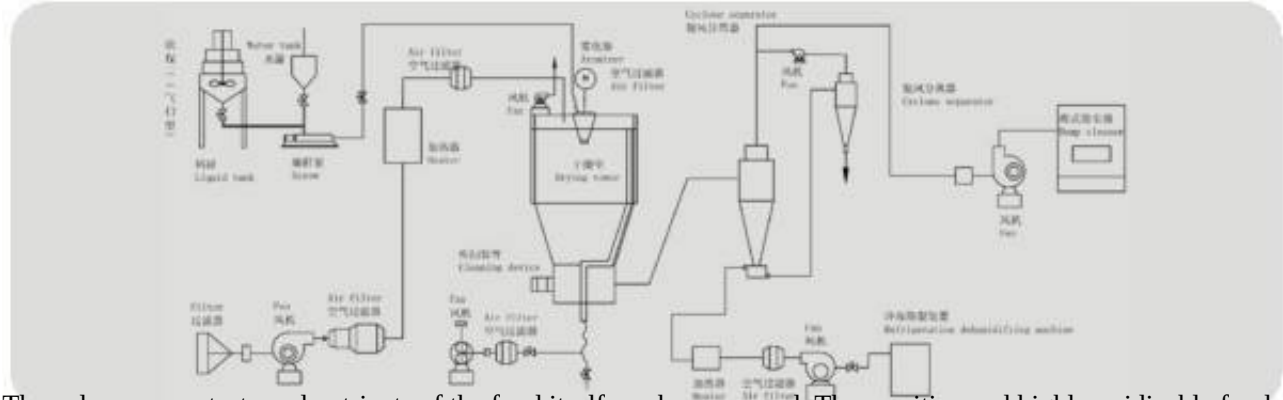
Application of vacuum freeze drying technology in food (2)

Characteristics of vacuum freeze-dried food

Food freeze-drying has many characteristics, and the technology is currently in the leading position of food preservation technology.

Microwave drying machine





The color, aroma, taste and nutrients of the food itself can be preserved. The sensitive and highly oxidizable foods are usually difficult to preserve and are susceptible to microorganisms and enzymes. Freeze-drying can be used at low temperatures (-40 ° C). And the high degree of anoxic state preserves the color, aroma, taste and nutrients of the food, and minimizes the loss. Taking banana products as an example, the products obtained by vacuum freeze-drying have the best flavor compared with the three methods of hot air drying, microwave drying and vacuum freeze drying. Vacuum freeze dryer

At the same time, the loss of protein and other fat-soluble vitamins (VA, VD) in foods such as meat, eggs, vegetables

and sweet corn treated by vacuum freeze-drying technology is 0%, and the loss of water-soluble vitamins such as VC and ?-carotene Only 5%. Taking spinach as an example, the vitamin retention rates after vacuum freeze-drying, hot air drying, dry drying and drying were 93%, 59%, 7% and 4%, respectively. According to foreign research reports, after one or two years of freeze-dried food, the nutritional level can still match fresh food.

Keep the original shape of the food intact

The food can be made more stable by the freezing process, so that a porous sponge-like structure can be formed after dehydration. Such a structure can theoretically dissolve and rehydrate, and the effect is ideal. It is pointed out that under hot air drying, the rehydration time of onion is 41 min, and the rehydration time of carrot is 110 min. Under freeze drying, the rehydration time of onion is 10 min, and the rehydration time of carrot is 11 min.

It can be seen that the vacuum freeze-drying not only has a short rehydration time but also can maintain the original shape intact and does not shrink.

Extend the shelf life of food and thoroughly dehydrate

In freeze-dried foods, the residual moisture distribution is relatively uniform and the ratio is below 5%. In general, freeze-dried foods that are vacuum-packed under ambient temperature conditions are not susceptible to deterioration and can be stored for years.

Can effectively avoid surface hardening of food

Due to the pre-freezing process, the migration of inorganic salt solutes originally dissolved in the water can be avoided, thereby avoiding surface hardening of the food.

Application of Vacuum Freeze Drying Technology in Food Processing

Compared with other drying technologies, vacuum freeze-drying technology has obvious advantages and has been widely favored and praised by people since its inception. Generally used in biological agents, medicine, pharmacy, food production and other directions. Vacuum freeze-drying technology can dry up to 100% of food production raw materials in the food production process.