

# Microwave puffing of dried bean curd

Guizhou dried tofu, also known as "roasted tofu," is a reprocessed product of tofu. The traditional baking time is slow, the heating is not uniform, the mass production is not available, the unsanitary and other factors make Guizhou dried tofu baking still in the primary stage. At this time, the technology of microwave baking and expansion came into being. Microwave expansion is a new expansion technology that uses the characteristics of microwave heating (internal heating). Compared with extrusion expansion and fried expansion, microwave expansion technology has the advantages of fast heating and the short heating time of tofu skin. It is not easy to cause some unnecessary chemical reactions of tofu skin. It does not increase the oil of tofu skin, so it better retains the original flavor of tofu skin and makes the inside of expanded food porous. Therefore, microwave expansion has a vast application prospect in the food industry. At present, the processing and application of microwave puffing food mainly include three aspects: starch expanded food processing (such as scalded skin), protein food puffing (such as tofu skin, pigskin, etc.) and fruit and vegetable materials puffing (such as areca). After the expansion, the product volume becomes more extensive, the taste is crispy, does not change color, and does not alter taste.

The dried tofu slices are 1cm thick, and the moisture content is about 25% after preliminary drying. By using [microwave puffing equipment of dried bean curd](#), the dried tofu's moisture can be kept at 100 ° for 3-5 minutes to absorb heat and vaporize and then starch gelatinization, protein denaturation, and moisture in the material can be turned into steam so that the material tissue can be expanded.

During the puffing process of dried tofu, edge warping and deformation will occur. The best design plan is to use a double-layer conveyor belt to limit the dried tofu position, so the puffed dried tofu is beautiful and regular in appearance. The conveyor belt is made of stainless steel chain plate with holes conducive to moisture evaporation.

The expansion efficiency of the microwave for dried tofu is 2-3kg / kW / h (depending on the moisture content after preliminary drying). According to the customer's demand of 100kg / h, 40kW air-cooled equipment is needed. According to the customer's use conditions, and oil-immersed tight power supply is equipped. The magnetron is fitted with a thermistor, which can effectively extend the service life of the equipment.

The characteristics of tofu drying with microwave expansion technology are as follows:

(1) High energy conversion efficiency and fast heating speed. The microwave oven itself does not heat, but the microwave energy penetrates the material, causes the polar molecules in the raw material to rub against each other, and generates internal heat. The microwave causes the liquid inside the processed material to heat up, vaporize and expand quickly, and change the structure of the polymer materials in the components by the expansion force of the gas, thus

becoming a microporous material with the characteristics of network structure and set shape.  
(2) Microwave expansion is accompanied by sterilization. Microwave sterilization is carried out under the double action of microwave thermal effect and non-thermal effect. Compared with conventional temperature sterilization, it can obtain a satisfactory sterilization effect at a lower temperature and a short time.

(3) Microwave equipment is easy to operate. Microwave power and conveyor belt speed can be adjusted steplessly, without thermal inertia, and can be switched on or off, simple and easy to control, improving the production environment. Microwave equipment has no residual heat radiation, no powder sound, no noise, no pollution, and it is easy to achieve the detection standard of food hygiene.

(4) The expansion effect of microwaves is noticeable. The rapid heating effect of microwaves makes the water molecules in the material vaporize rapidly and achieve the purpose of expansion.

(5) The sterilization temperature of microwave is low, and the loss of nutrition is little. The microwave sterilization temperature is about 80 °C, the processing time is 3-5min, and it can maintain the nutrition composition to the maximum extent, and it does not affect the original flavor. It is the right way for deep processing of fruits and vegetables and obtaining green food.

Equipment application scope:

The equipment is widely used in the drying, expanding and sterilization processing of bean products (dried tofu, bean skin); rice products (rice cake, Guoba, powder skin), fish tripe (sliced tripe, sharp tripe, butterfly tripe), skin tripe, potato chips, shrimp chips, pigskin, and other products.