

# Washing Microwave Sterilization Machine

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Microwave is an electromagnetic wave whose frequency is from 300 MHz to 300 GHz, that is, the electromagnetic wave whose wavelength is in the range of 100 cm to 1 mm, that is to say, the wavelength is between far infrared and radio waves. In the microwave band, the wavelength of 1-25 cm is specially used for Xiaoda, while the rest is used for telecommunication transmission. In order to prevent the interference of civil microwave power on radio communication, broadcasting, television and radar, the frequency of civil microwave in industry, scientific research, medicine and household is 2450 soil 50MHz. Therefore, the frequencies used in microwave digestion instruments are basically 245 0MHz, and so are household microwave ovens.



With the continuous improvement of people's living standards and the change of consumption concepts, higher and higher requirements have been put forward for the product structure, quality, safety and hygiene of food industry, especially for all kinds of traditional and convenient packaged food, which has become a hot consumption spot in the food market. But in the process of producing, preserving, transporting and selling these foods, they are easily polluted and deteriorated, thus losing their commercial value. Although the national food hygiene law has strict regulations on the hygienic indicators of various kinds of food, it is difficult to meet the standard in general. This not only greatly affects the shelf life of goods, but also is extremely harmful to the protection of people's health. Although conventional technologies such as high temperature drying, blanching, pasteurization, freezing and preservatives can be used to achieve this goal.



### The Mechanism of [Microwave Sterilization machine](#)?

Microwave sterilization and freshness preservation are the hope that microwave treatment of food can make microorganisms such as fungi and insect pests lose their vitality or death, and ensure that the amount of bacteria in food during a certain storage period does not exceed the allowable range stipulated by the health law, thus prolonging its shelf life. The mechanism of microwave sterilization and freshness preservation is summarized as follows. It is well known that bacteria and adults, like any biological cell, are a condensation medium composed of complex compounds such as water, protein, nucleic acid, carbohydrate, fat and inorganic biology. Among them, water is the main component of biological cells, with a content of 75-85%, because all kinds of physiological activities of bacteria must be participated by water, and the process of bacterial growth and reproduction, the absorption of various nutrients is accomplished through the diffusion of cell membranes and osmotic adsorption. Under the action of a certain intensity of microwave field, insects and fungi in food can also absorb microwave energy at the same time because of molecular polarization relaxation. Because they are condensate media, the interaction between molecules intensifies the energy state transformation of microwave energy. Thus, proteins in vivo are affected by both non-polar thermal motion and polar rotation, and their spatial structure is changed or destroyed, while their proteins are denatured. After denaturation, the solubility, viscosity, expansibility, permeability and stability of protein will change significantly, and lose its biological activity. On the other hand, the non-thermal effect of microwave energy plays a special role in sterilization which is

not found in conventional physical sterilization. It is also one of the causes of bacterial death. It is the thermal or non-thermal biochemical effects of the microwave energy mentioned above that interfere with the normal metabolic functions of the parasites and bacteria, destroy their production conditions and delay the speed of genetic reproduction to achieve the purpose of insecticidal and sterilization.

[Washing microwave sterilization machine](#) characteristics: Short time, fast speed.

Conventional thermal sterilization transfers heat from food surface to interior through heat conduction, convection and radiation. It often takes a long time to reach the required sterilization temperature. Microwave sterilization is the direct interaction between microwave energy and microorganisms such as food and bacteria. Because of the combined action of thermal and non-thermal effects, the treatment time is greatly shortened. Low-temperature sterilization to maintain nutrient composition and traditional flavor. Microwave sterilization causes the variation of proteins and physiological active substances in the material, which results in the delay and death of the growth and development of microorganisms, and achieves the purpose of food sterilization, insecticide and freshness preservation.