

## Application prospect of microwave technology

Through reviewing the research and application of [microwave drying equipment](#) in China's wood industry, it can be seen that there are more researches on microwave drying technology and modification technology, and less on product quality testing. However, with the decrease of timber resources, the research object of timber industry has gradually expanded to bamboo, agricultural residues, vines and other grasses and herbs. Due to the shortage of resources and the continuous growth of market demand, high efficiency and energy conservation is an inevitable trend. Therefore, the application of microwave technology in wood industry is becoming more and more important.

### [Wood microwave drying](#) technology

Microwave drying technology has been studied and applied early in wood processing industry in China, so the principle of microwave heating and drying technology have been grasped preliminarily. Because of the high cost of microwave drying, it is mainly used for drying precious wood. The key problem of microwave drying technology is the expensive equipment, which hinders the further application and popularization of microwave technology. The solution is to carry out technical innovation and enhance the research and development ability of PLC programmable controller, magnetron, microwave transformer, frequency converter and other core components. Although it takes some time to master the core technology of microwave equipment, the industrialization prospect of microwave drying technology is very promising. Microwave drying will be the main development direction of drying technology in wood industry.

## Microwave modification technology

Wood modification is an important way to improve wood properties and achieve optimum use of secondary materials. Microwave treatment can improve and overcome the defects of dry shrinkage and wet expansion, poor dimensional stability, easy discoloration, flammability, non-corrosion resistance, non-wear resistance and so on. The basic research on wood modification in microwave technology is rather weak in China, and there is no application research. Therefore, we must intensify the research on microwave modification.

## Microwave nondestructive testing technology

Microwave non-destructive testing is to test the properties of bamboo wood without destroying the performance and use effect of the premise, such as defects of wood-based panels, modulus of elasticity, static bending strength, density and other performance indicators. Microwave non-destructive testing makes the quality control and management of bamboo and wood-based panels reach a new level, which provides necessary conditions for the process control and automation of wood-based panels production. Microwave nondestructive testing technology has a good prospect in the quality testing of structural timber, log and laminated wood.

## Microwave extraction technology for formaldehyde emission detection

The application of microwave extraction technology in the determination of formaldehyde emission from wood-based panels is just beginning. It is necessary to draw lessons from the extensive application experience of microwave extraction technology in environmental, biochemical and food analysis, strengthen the research of special microwave extraction equipment for formaldehyde emission, strengthen the research of extraction technology, and strengthen the detection knot of microwave extraction method. The comparability and correlation between microwave extraction and perforated extraction should be strengthened in order to make them more widely and rationally utilized.