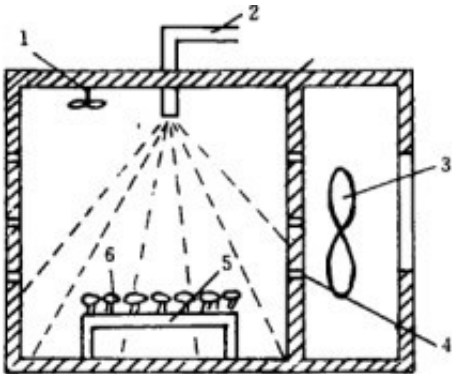


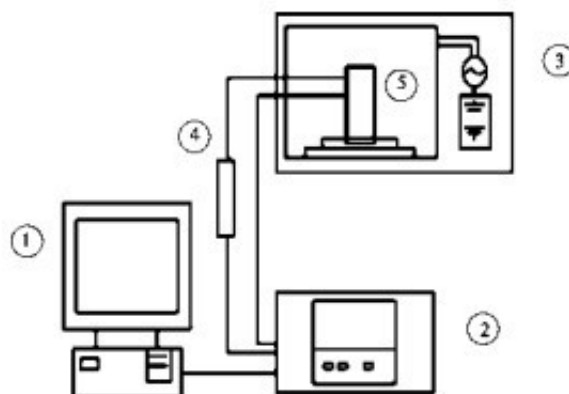
# Study on Drying Technology of Wood and Wood Products



Abstract: This paper briefly describes the development of wood and wood products drying technology, briefly introduces the principles and development status of various drying technologies, finds out the shortcomings of wood [microwave drying equipment](#), creatively puts forward atmospheric freeze drying technology under low temperature environment, and introduces the origin of atmospheric freeze drying technology. Physiology and classification have opened up a new idea for wood drying technology in the direction of low temperature.

Key words: [wood microwave drying](#); low temperature; atmospheric pressure; freezing

Drying is an indispensable link in the process of wood products processing. Wood drying refers to the process of reducing the moisture content of wood to the specified value range by using the difference between the water vapor pressure inside and outside the wood in the heating process. This process occupies an important position in the field of wood processing and manufacturing, and is also one of the processes with the highest technical content. If the wood and its wood products are treated improperly in the drying process, it will lead to cracking, discoloration and other phenomena, quality problems, resulting in wood and its wood products



can not continue to use and waste.

China is a big producer of wood products, so the demand and consumption of wood is huge. According to statistics, from January to September 2013, China imported 51.486 million m<sup>3</sup> logs, sawn timber, sheet and sleeper timber from abroad, up 15.86% compared with the same period in 2012, and the import volume maintained an upward trend. These imported timber can

be used for production and life only after manual drying, but only 20% of the imported timber has been artificially dried.

The main reason is that fast drying is not possible. At present, wood drying is mainly based on conventional drying methods. Now most common wood products are made of precious raw materials such as rosewood and logs, and the specifications of wood used are large. It is difficult to meet the drying requirements of high-quality wood products by conventional drying methods. In recent years, the study of new, efficient, energy-saving and safe drying methods has become a research hotspot of scholars all over the world.

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At present, conventional drying technology is still the dominant technology in wood drying technology, while technologies such as microwave drying, dehumidification drying, vacuum drying and so on are developed in different application areas, and there is no one who is better, as long as suitable is the best method.

The atmospheric freeze-drying method proposed in the end of this paper fills in the lack of research methods in low and medium temperature environment of wood drying, and has important guiding significance. However, at present, it is limited to the theoretical research stage, and a large number of experiments are needed to verify its practicability and economy. Wood drying technology is a complex technology with multi-disciplinary research. To promote the rapid development of wood drying technology, researchers in different disciplines need to improve constantly.