

## Study on the structure of domestic water purifier

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### Abstract

**With the progress of science and technology, household water purifier has become a trend, especially since China's reform and opening up, China's economic system has become more and more perfect, people's quality of life has gradually improved, and ideas have begun to change gradually. More and more people pay attention to the pollution of water resources, so the acceptance of household water purifier is becoming higher and higher. In this case, it is very important to analyze and study the domestic water purifier.**

### Keywords

**Structure, domestic, water purifier.**

### 1. Introduction

With the progress of human beings and the development of science and technology, along with the rapid economic development in the 21st century, there are many ecological pollution, for example, one of the most serious pollution is water pollution. Although the city's tap water has been properly treated, it is still due to more and more serious water pollution, plus the conventional water treatment process is not in line with people's drinking water standards and the water pipe network is rusty and aging. For example, the problems existing in tap water in urban water supply are mainly chroma, iron, manganese, fluorine plasma exceeding the standard, and also including by-products produced by chlorine disinfection Substance, organic pollutants, etc., mainly due to the aging of urban pipe network, lead to excessive iron and manganese ions, resulting in turbidity and chroma increase of tap water. The number of bacteria in tap water exceeds the standard due to the growth of microorganisms on the pipe wall of the water pipeline, which brings great harm to human body. The conventional way of water treatment is mainly to remove suspended solids, colloids and bacteria, but it can not effectively remove dissolved organic matter in water. Although most bacteria in water are eliminated by chlorination, liquid nitrogen and organic matter in water will be combined into one, which will produce a lot of organic halides, such as a large number of trihalomethanes. Although many scholars hope to make ideal treatment in the water supply, it is difficult to achieve in a long time. Organic pollutants, microorganisms, potassium and calcium ions, heavy metal ions and other substances in water, it is necessary to deal with them, otherwise it will cause great harm to human body, and then affect people's normal work and rest life, and more seriously, it may increase the incidence of cancer to a certain extent. Long term use of tap water with low safety index will cause a series of diseases. Therefore, it is very necessary for us to choose the household water purifier for research and check the last link of our domestic tap water. As people's drinking water and cooking water only occupy less than 2% of the city's water supply, it is not cost-effective to improve the quality of purified water from the factory. Therefore, the water resources provided by the domestic water purifier is particularly important. The treatment technology of the domestic water purifier can remove the metal ions,

bacteria and other excessive substances in the tap water. The treated water becomes clean and sterile, and can also improve the taste of drinking[1].

## 2. Development status of domestic water purifier at home and abroad

Domestic water purifiers were first used in the United States in the 1950s. In the 1970s, living standards in Europe and the United States began to improve rapidly, so domestic water purifiers began to be popular in Europe and the United States, and has continued to this day. The earliest use time of domestic water purifier in China was in the 1990s, which was 40 years slower than that in the United States, and it was imported at the beginning. At the beginning of the century, domestic domestic water purifiers began to appear and use on a large scale. However, at present, most of the household water purifiers used in China are distributed in coastal areas and economically developed areas. The utilization rate of domestic water purifiers in rural areas is low, and some of them have no idea of tap water treatment. The lack of understanding of domestic water purifiers in Western China is one of the reasons for the low utilization rate of domestic water purifiers.

The water purification technology of domestic water purifier has been continuously improved, and its related problems have been constantly overcome. In recent years, domestic water purifier has gradually entered people's life, and people's acceptance of domestic water purifier is getting higher and higher. According to the data, the domestic water purifier has sold 3000 by the end of 2016 through the sales channels of Taobao, Jingdong and offline stores More than 10000 units, urban households accounted for the main proportion, the urban popularization rate almost reached 70%, and the rural household water purifier technology and equipment accounted for nearly 40%. According to the prediction of experts, this number will continue to rise in the future development. At present, the market is not saturated, the share is large, and the prospect is good. In order to improve the market share, the major manufacturers also invest a lot of money, manpower and technology to enhance their competitiveness. In the next few years, the improvement of domestic water purifier technology will enter a promotion stage, so the domestic water purifier technology has a very good development prospect.

Looking at the development of domestic water use: 50 years ago, people directly took water from wells and rivers; 40 years ago, domestic tap water technology was introduced; 20 years ago, bottled water was sold; 10 years ago, the development of traditional household water dispenser was impacted by upgrading, and household water purifier products began to rise.

It is difficult to improve the urban water resources environment in a short period of time. People's demand for health quality improvement is contradictory. Health products have gradually evolved from optional status to necessary choice status.

According to the monitoring data of Aowei cloud network, the sales volume of water purifier market in China increased year by year from 2013 to 2018, among which the annual sales volume of water purifier in China reached 32.69 billion yuan in 2018, with a year-on-year increase of 18.4%.

According to different statistical caliber, the popularization rate of domestic water purifier in China is less than 10%, while that of American household water purifier is 70% - 80% (mainly terminal water purifier). It can be seen that China's domestic water purifier penetration rate is low, we need to strengthen our concept, let health permeate our thinking.

However, from the perspective of subdivision, the penetration rate of whole house water purification is relatively high among the middle class in the United States, especially in California and cities along the Great Lakes. In addition to the relatively developed economy in the United States, the objective reasons include: 1) the climate in California is dry, mainly by pumping groundwater from the Rocky Mountains, and the content of calcium and magnesium is very high, which causes great impact on domestic water It's not convenient. 2) In the Great

Lakes region, where the development history is earlier, the content of heavy metals in water source is high, and the pipe network system is old and easy to cause secondary pollution. In contrast, California and the cities along the Great Lakes are of great significance to northern China and the middle and lower reaches of the Yangtze River. First, there are few rivers in the north of China, mainly using groundwater, with more calcium and magnesium ions, and the water quality is relatively hard, similar to California in the United States; while in the south, surface water is mainly used, and the overall water quality is relatively soft (the southwest also uses surface water, but due to the special geological structure, there is more soluble calcium), so the demand for water quality softening in the northern region is relatively large. Second, from the perspective of pollutants, the water pollution in northern China and the middle and lower reaches of the Yangtze River is becoming increasingly serious, while the water quality in South China is better. Based on the above economic development, the water purifier takes the lead in promoting the popularity of the middle class in Beijing, Tianjin, Hebei and the middle and lower reaches of the Yangtze River[2].

## References

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