

# China Membrane Bioreactor Market Segmented By Membrane Type (Hollow Fiber, Flat Sheet, and Multi Tubular), By Configuration (Submerged MBR and External MBR), By Application (Municipal, Commercial, and Industrial), By Region, Competition Forecast & Opportunities, 2018-2028F

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## Abstracts

China Membrane Bioreactor market is predicted to proliferate during the forecast period 2024-2028. The market for Membrane Bioreactors in China is primarily being driven by the growing need for water treatment solutions across the country. This can be attributed to the declining freshwater resources and the increased demand from residential sector for chemical-free, pure drinking water. The market for membrane bioreactors in China is expanding as a result of rising environmental concerns regarding efficient sanitation and wastewater disposal. Nowadays, MBRs are being used for wastewater treatment in an increasing number of residential, commercial, and industrial buildings. These systems are portable, lightweight, and economical, in terms of both cost and energy use, and capable of aerating liquid to create tangential liquid flow over membranes. Additionally, the market is expanding because more companies, such as companies in the chemical, pharmaceutical, power, food and beverage, and textile sectors, are using ecologically friendly water and wastewater management techniques. The membrane bioreactor market in China is likely to expand between 2024 and 2028 as a result of other factors, such as rapid industrialization and the implementation of government regulations that encourage the use of MBRs in place of the country's present wastewater treatment facilities. Additionally, China intends to actively promote the reuse of wastewater for household, industrial, ecological, and agricultural use. Currently, China is aiming to increase the water reuse rates by more than 25% by 2025.

Membrane bioreactors (MBRs) are used for the treatment of industrial and municipal wastewater. A suspended growth bioreactor (UF) is connected with a perm-selective or semi-permeable membrane technology, such as microfiltration (MF) or ultrafiltration (UF). The two most popular membrane types for MBR systems are vacuum or gravity-driven and pressure-driven systems. They keep the floating particles in place while separating the sediments from the sludge concentration. They have enhanced effluent quality, reduced carbon impact, and controlled biomass retention, and are effective against diseases including cryptosporidium and giardia when compared to conventional approaches.

The state-of-the-art MBR technology can control a wide range of water pollutants, including nitrogen, bacteria, suspended particles, pathogens, and other contaminants found in municipal and industrial waste. The moving bed biofilm reactor and traditionally activated sludge processes (ASP) are inadequate compared to MBR, for the treatment of wastewater. Reverse osmosis, microfiltration (MF), ultrafiltration (UF), and nanofiltration (NF) all employ MBR Membranes. Several polymeric materials, including polyvinylidene fluoride (PVDF), polyethylene (PE), polyethersulfone (PES), and others (RO), are used in the MBR technology. Compared to conventional systems, MBRs produce less sludge because they have smaller reactor diameters and greater sludge concentrations. In MBR, longer solid retention times (SRT) also provide improved biological treatment.

In China, for the past 20 years, membrane bioreactors (MBR) have attracted a lot of interest for the treatment and reuse of wastewater. In recent years, China's average annual growth rate has been close to 100%, compared to the global MBR market's average annual growth rate of 10.9%. More than 300 MBR plants have been put into use, successfully, for a variety of wastewater treatment processes, including municipal wastewater, bathing wastewater, restaurant wastewater, landfill leachate, hospital wastewater, petrochemical wastewater, and high-concentration industrial wastewater. These plants range in capacity from 10 to 100,000 m<sup>3</sup>/d, with over 12 MBR plants having capacities more than 10,000 m<sup>3</sup>/d. Origin Water Technology Co., Ltd. built Beijing's largest MBR plant, the Beijing Kunyu River WWPT, which can treat and reuse 100,000 m<sup>3</sup>/d of municipal wastewater. With a 30,000 m<sup>3</sup>/d capacity, Motimo Membrane Inc. constructed the largest MBR facility for the treatment of industrial wastewater in Tianjin. Petrochemical wastewater treatment is the main industrial use for MBRs, and there are currently more than 10 MBR facilities with a combined capacity of more than 5000 m<sup>3</sup>/d. The built-in MBRs in South-East China are mostly utilized for the high-strength industrial wastewater treatment, whereas MBRs in North China are mainly used for the treatment and reuse of municipal wastewater.

## Enhance the Quality of Water

Water reclamation plants have become popular in China, while decentralized systems have been deployed in rural and individual structures. More than 80% of China's municipal water reuse volume—12.62 billion m<sup>3</sup> in 2019—was utilized for commercial, industrial, and industrial purposes such as cooling water, processing, and boiler feed water. Toilet flushing, gardening, car washing, and firefighting are few examples of various urban applications, followed by agricultural irrigation. By the end of 2019, the total length of pipelines constructed for the use of recovered water has exceeded 15,000 km. The present rate of water reuse in China's urban areas is 19.9%, which is a relatively low figure. In 2019, more than 96.3% (63.3 billion m<sup>3</sup>) of the wastewater discharged in China's urban areas—a total of 65.7 billion m<sup>3</sup> annually—was treated. Therefore, the demand for membrane bioreactor is expected to boost in the upcoming years.

## Benefits of Membrane Bioreactor (MBR) Systems

Membrane bioreactor (MBR) systems have the capacity to process a wide range of water pollutants, including nitrogen, bacteria, pathogens, suspended particles, and other contaminants often found in municipal and industrial waste. Both the active sludge process (ASP) currently in use and the moving bed biofilm reactor (MBR), are less efficient in treating wastewater. In membrane bioreactors systems various components have been used such as hollow fibre, flat sheet & multi-tubular, microfiltration, ultrafiltration, nanofiltration, and reverse osmosis. They offer higher sludge concentrations and smaller reactor diameters than typical systems, which reduces the output of sludge. Due to the rapid urbanization and infrastructure development in developing countries, the market for membrane bioreactor (MBR) systems is predicted to climb even faster during 2024-2028. Moreover, the expansion of the China Membrane Bioreactor market's value is anticipated to be fueled by the nation's growing need for affordable and durable goods.

## China Membrane Bioreactor Market Challenges

Highly qualified workers are required for the operation and maintenance of the membrane bioreactor's mechanical components. The complexity of MBR means that there is a lack of qualified personnel with the required technical expertise. A certified and skilled team is required for MBR operations. Additionally, the employees should have received enough training regarding any health risks related to the handling and

cleanup of chemicals. Furthermore, membrane damage could result in a significant loss of money. As a result, specialists should manage sophisticated system maintenance well.

## Market Segmentation

The China Membrane Bioreactor market is divided into Membrane Type, Configuration, and Application. The market is divided into hollow fiber, flat sheet, and multi tubular based on the membrane type. Based on the configuration, the market is divided into Submerged MBR and External MBR. Based on application, the market is divided into municipal, commercial, and industrial. Regionally, the market is divided among East China, South-Central China, North China, South-West China, North-East China, and North-West China.

## Company Profiles

Hinada Water Treatment Tech Co. Ltd, Jiangsu Lantian Peier Membrane Co. Ltd, Hongtek Filtration Co. Ltd, Qingdao Oyang Machinery Equipment Co. Ltd, Bailun Biotechnology Co. Ltd, Beijing Origin Water Membrane Technology Co. Ltd, Bailun Biotechnology Co. Ltd. RisingSun Membrane Technology (Beijing) Co. Ltd. are among the major players that are driving the growth of the China Membrane Bioreactor market.

## Report Scope:

In this report, the China membrane bioreactor market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

### China Membrane Bioreactor Market, By Membrane Type:

Hollow Fiber

Flat Sheet

Multi Tubular

### China Membrane Bioreactor Market, By Configuration:

Submerged MBR

External MBR

China Membrane Bioreactor Market, By Application:

Municipal

Commercial

Industrial

China Membrane Bioreactor Market, By Region:

East China

South-Central China

North China

South-West China

North-East China

North-West China

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the China Membrane Bioreactor market.

Available Customizations:

With the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional market players (up to five).

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