

# **Brine Concentration Technology Market Forecasts to 2030 – Global Analysis By Source (Seawater Brine, Wastewater Brine, and Mining Brine), Type, Scale of Operation, Technology Type, Application and By Geography**

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## **Abstracts**

According to Statistics MRC, the Global Brine Concentration Technology Market is accounted for \$18.42 billion in 2024 and is expected to reach \$29.24 billion by 2030 growing at a CAGR of 8.0% during the forecast period. Techniques and procedures used to lower the volume of brine, a highly saline by-product commonly generated in desalination, wastewater treatment, and chemical operations, are referred to as brine concentration technology. This technology involves various techniques such as reverse osmosis, multi-effect distillation, mechanical vapor compression, and evaporation. The goal is to separate the water from the dissolved salts and other impurities, making the remaining brine more concentrated, and enabling its safe disposal or further processing for resource recovery.

According to Baker Hughes, the number of oil rigs fell from 2,073 in January 2020 to about 1,176 in May 2020, which is expected to negatively affect the clear brine fluids market in the current year.

Market Dynamics:

Driver:

Rising demand for desalinated water

Desalination has become a key remedy for water scarcity as the world's population

rises and freshwater supplies become more limited. However, the desalination process produces a lot of brine, which needs to be managed well to reduce its negative effects on the environment. Technologies for brine concentration, such as Zero Liquid Discharge (ZLD) systems, are essential for handling and cutting down on brine waste. These technologies support resource recovery and appropriate disposal, which is in line with environmental laws and the movement for water sustainability. As a result, the increasing use of desalinated water is hastening the global use of brine concentration solutions.

#### Restraint:

##### High initial investment

Advanced technologies like Zero Liquid Discharge (ZLD) systems and multi-effect distillation require substantial capital for equipment, installation, and infrastructure setup. This high upfront cost often deters companies, especially in regions with limited funding or government support. Additionally, the complex nature of these systems demands skilled personnel and ongoing maintenance, further adding to the financial burden. While the long-term benefits of brine concentration, such as compliance with environmental regulations and resource recovery, are undeniable, the steep initial investment poses a challenge to widespread adoption, particularly in cost-sensitive markets.

#### Opportunity:

##### Increasing adoption in municipal and industrial applications

Municipalities are leveraging these technologies to treat wastewater efficiently, meeting stringent environmental regulations and ensuring sustainable water management. Industrial sectors, including oil & gas, mining, power generation, and food processing, are adopting brine concentration solutions to manage wastewater and reduce brine disposal costs. These technologies enable industries to comply with discharge standards, recover valuable resources like salts and minerals, and minimize environmental impact. The growing focus on sustainability and circular economy practices further fuels adoption, as industries and municipalities recognize the long-term benefits of efficient brine management in reducing environmental and operational challenges.

#### Threat:

## Limited infrastructure in developing regions

Limited infrastructure in developing regions is a significant challenge for the brine concentration technology market. Many countries lack the necessary facilities, such as advanced wastewater treatment plants, robust utility networks, and skilled labor, to implement and maintain these technologies effectively. High initial costs and limited government funding exacerbate the issue, making it difficult for industries and municipalities to invest in brine concentration systems. As a result, the adoption of these technologies remains low, despite the pressing need for effective brine disposal solutions. Bridging this infrastructure gap is crucial for market expansion in developing economies.

## Covid-19 Impact

The COVID-19 epidemic affected the market for brine concentrating technologies in a variety of ways. Although the pandemic originally hindered market growth because of supply chain disruptions and decreased industrial activity, it also brought attention to the significance of resource management and water conservation. Since brine concentration technologies are essential for lowering water consumption and minimizing environmental effect, it is anticipated that this growing emphasis on sustainable water practices would eventually fuel demand for these technologies.

The seawater brine segment is expected to be the largest during the forecast period

The seawater brine segment is expected to account for the largest market share during the forecast period, due to the increasing focus on sustainable water management. With growing desalination activities to meet rising freshwater needs, the need to manage the brine by-product efficiently has surged. Stricter environmental regulations on brine disposal and the push for resource recovery, such as extracting valuable minerals and salts from seawater brine, further support market growth. Advancements in technologies like Zero Liquid Discharge (ZLD) systems and energy-efficient solutions are also propelling the adoption of seawater brine concentration technologies.

The wastewater treatment segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the wastewater treatment segment is predicted to witness the highest growth rate. Industries such as oil & gas, chemical processing, and power

generation produce large volumes of wastewater containing high salinity, requiring advanced treatment solutions. Stringent environmental regulations and sustainability goals are pushing industries to adopt brine concentration technologies to reduce wastewater discharge and recover valuable resources. Additionally, advancements in energy-efficient systems, coupled with increasing awareness of water reuse and recycling, further accelerate the adoption of these technologies in wastewater treatment.

Region with largest share:

During the forecast period, Asia Pacific region is expected to hold the largest market share, due to the increasing demand for water in industries such as power generation, oil & gas, and mining has elevated the need for efficient wastewater treatment solutions. Stricter environmental regulations and government initiatives promoting sustainable water management further boost adoption. Additionally, the region's expanding desalination activities to address freshwater scarcity, coupled with advancements in energy-efficient technologies, are key factors driving the market's growth in Asia-Pacific.

Region with highest CAGR:

Over the forecast period, the North America region is anticipated to exhibit the highest CAGR, owing to stringent environmental regulations on wastewater disposal and brine management. The region's growing demand for desalinated water, particularly in arid areas, increases the need for advanced brine treatment solutions. Key industries such as oil & gas, power generation, and mining require efficient wastewater treatment to comply with regulations and minimize environmental impact. Furthermore, technological advancements, the adoption of Zero Liquid Discharge (ZLD) systems, and increasing investments in sustainable water management solutions propel market growth in North America.

Key players in the market

Some of the key players profiled in the Brine Concentration Technology Market include SUEZ Water Technologies & Solutions, Aquatech International, Dow Chemical Company, Honeywell UOP, GE Water & Process Technologies, AquaVenture Holdings Limited, IDE Technologies, Tetra Tech, H2O Innovation, SUEZ Recycling and Recovery, IDE Technologies, Energy Recovery, Inc., Envirogen Technologies, Lenntech, Alfa Laval, Thermo Fisher Scientific, Koch Membrane Systems, and The Dow Chemical Company.

### Key Developments:

In December 2024, Dow and Inventure opens in a new tab, a technology commercialization platform, announced plans to collaborate to develop and commercialize new waste-to-value technologies. The collaboration aims to enable globally scalable, cost-effective conversion of mixed wastes to petrochemical feedstocks.

In February 2022, Honeywell UOP announced that Tupras has selected ISOALKY™ technology to produce high-quality alkylate at Tupras refineries, making the Turkish company the latest to convert to the new liquid alkylation process to meet the demands for cleaner-burning fuels.

### Sources Covered:

Seawater Brine

Wastewater Brine

Mining Brine

### Types Covered:

Calcium Chloride

Sodium Chloride

Zinc Calcium Bromide

Cesium Formate

Potassium Chloride

Other Types

### Scale of Operations Covered:

Small-Scale Operations

Large-Scale Operations

Technology Types Covered:

Multi-Effect Distillation (MED)

Reverse Osmosis (RO)

Mechanical Vapor Compression (MVC)

Thermal Evaporation

Electrodialysis (ED)

Crystallization

Other Technology Types

Applications Covered:

Desalination

Wastewater Treatment

Mining and Chemical Industry

Oil and Gas Industry

Food and Beverage Industry

Chemical Manufacturing

Pharmaceutical

Other Applications

## Regions Covered:

### North America

US

Canada

Mexico

### Europe

Germany

UK

Italy

France

Spain

Rest of Europe

### Asia Pacific

Japan

China

India

Australia

New Zealand

South Korea

Rest of Asia Pacific

South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2022, 2023, 2024, 2026, and 2030
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

#### Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

#### Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

#### Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

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