



Fact Sheet

Profile

Dow Water & Process Solutions has a 50-year legacy of providing innovative water and process solutions to both communities and industries alike. Dow Water & Process Solutions offers a broad portfolio of ion exchange resins, reverse osmosis membranes, ultrafiltration membranes and electrodeionization products, with strong positions in a number of major application areas, including industrial and municipal water, chemical processes, pharmaceuticals, power, residential water, and wastewater and reuse.

Web Site

www.dowwaterandprocess.com

Market Trends

- 1.1 billion people worldwide lack access to safe drinking water
- 2 million people die per year from drinking contaminated water
- 75% of the world's surface is water
- 98% of the world's water contains salt making it undrinkable
- 41% of the Earth's population (2.3 billion) live in water-stressed areas; 3.5 billion by 2025
- The number of people living without clean, piped water is 1.2 billion (WHO)
- Water shortages limit economic development and threaten human life
- The demand for electricity will double by 2030
- China is planning to build 35 nuclear power plants
- By 2045 the world population is estimated to be 9 billion

Sources: World Health Organization, Department of Energy, Environmental Protection Agency, McKinsey Research, *China Daily*

Market Position

- Innovation leader in reverse osmosis and ion exchange resin technologies
- Only manufacturer today offering a full portfolio of water treatment technologies
- A global supplier meeting the needs of customers worldwide
- Extensive technical, process and application experience and expertise
- Dow Water & Process Solutions technologies help process 36 million gallons of clean water a minute across the globe.
- Dow membranes help provide nearly 50% of Israel's clean drinking water

R&D Innovation

- R&D is the heart of Dow Water & Process Solutions business
- An elite, global team of researchers focused on more than 200 major projects
- Patents granted has tripled in last 5 years
- Best in class polymer science and chemistry, creating technology differentiation
- Leader in advanced membrane and resin technologies
- Innovative technologies to reduce the cost of desalination and reuse by 35%
- Membranes that require less energy
- Systems that operate at higher recovery factors
- More efficient removal of contaminants
- Process solutions business supports over 38 different ion exchange applications

Manufacturing

- 11 plants located globally
 - 1900 employees
 - State-of-the-art R&D centers in Minnesota USA, Michigan USA, Pennsylvania USA, China, Spain, Brazil, Germany, Saudi Arabia
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Water Treatment

Dow Water & Process Solutions is the only manufacturer today to offer a full portfolio of water treatment technologies. Our ion exchange resins, reverse osmosis membranes, ultrafiltration membranes and electrodeionization products continue to set an industry standard for quality and reliability, and play a leading role in delivering high purity water across major use sectors:

- Residential water
- Power
- Wastewater and water reuse
- Industrial process water and ultrapure water
- Desalination and municipal water

Residential/Commercial

- Dow has engineered synthetic, polymeric absorbents and resins for regeneration under milder conditions so on-site regeneration is possible in commercial water treatment systems—minimizing waste and the inconvenience of regenerating materials off-site.

Wastewater/Water Reuse

- For industrial water requiring trace contaminant removal, Dow offers ion exchange resins ideally suited for the selective removal of trace contaminants such as radium, arsenic, and perchlorate, among others.

Desalination/Municipal

- We are an industry leader in development of reverse osmosis and ultrafiltration technologies that improve efficiencies of water treatment processes worldwide.

Process Solutions

Dow's process solutions business participates in 38 different applications for ion exchange resins. Ion exchange resins offer exceptional flow and capacity over a wide range of applications at lower cost.

- Healthcare
- Chemical processing
- Pharmaceuticals/Food and beverage

Chemical Processing

- Process solutions from Dow remove impurities (including traces of toxic organics and metals) from chemical processing applications helping to prevent discharge of those impurities to the environment, helping companies meet regulatory requirements and improving the purity and value of products.
- Our resins are used for isolation, purification and chemical separation.
- Dow's resins remove boron from chemically-processed water for business and potable water uses.
- Resin technologies from Dow help our customers save costs, improve product purity and create value (e.g., purify hydrogen peroxide for use in electronic applications).
- Dow's ion exchange resins are used in the production of biodiesel, a renewable fuel source for transportation and power that helps to reduce greenhouse gas emissions associated with climate change.

Pharma and Nutrition

- Resins from Dow are used in the manufacture of medicines and health products, including insulin, vitamins and products that help lower cholesterol and mitigate high potassium.
 - Our resins and components are used to make some of the most popular beverages in the world, including Coca-Cola and orange juice.
 - Dow's solutions purify and enhance food and beverage ingredients by controlling acidity, color, odor and salt content, enhancing flavor, and increasing shelf life.
 - The production of dextrose, high fructose corn syrup is dependent on ion exchange resins. Dow's resin technology is integral to the efficient, effective process in sweetener production, helping to ensure that critical ingredients in food around the world are produced efficiently and to high-quality standards.
 - Approximately 80% of nicotine lozenges and gums are produced using Dow's resins.
 - The broad portfolio of gel and macroporous uniform size (UPS) anion and cation exchange resins supplied by Dow helps customers tailor solutions based on their specific needs.
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Power

- Our ion exchange resins play an important role in protecting power generation components from corrosion, thereby decreasing maintenance costs and increasing plant life.
- Our landmark nuclear-grade, gel-type, strong acid cation exchange resin combines a very high capacity and oxidation stability to enable a completely new level of performance in nuclear power applications.
- We are a leading provider of ion exchange resins in the power industry today, with 50 years of strong brand recognition and a proven track record of serving customers.
- Dow's resin technology used in nuclear power plants helps companies meet regulatory requirements.

Industrial

- Our cation and anion exchange resins provide a long service time and high capacity for polishing high-purity water for specialty electronics applications, such as the manufacturing of disk drives, display devices and CD-ROMs discs.

**Key Technology Wins
(desalination and municipal water)**

- ISRAEL: Dow Water & Process Solutions membranes were selected for use in the world's largest desalination plant using 16" membranes. New 16" technology is deployed at Soreq plant in Tel Aviv, Israel. This larger membrane design will help reduce overall plant operating costs by reducing maintenance and installation costs.
- ISRAEL - Ashkelon: In Ashkelon, Israel, 40,000 DOW FILMTEC™ elements purify enough water daily to fill 35 Olympic-size swimming pools. Dow membranes help to provide up to 50% of Israel's clean water supply.
- CHINA - Beijing: In conjunction with the 2008 Beijing Olympics, DOW FILMTEC™ membranes were installed at three water treatment facilities, helping the Chinese government meet its commitment to reach a wastewater reuse rate of 50%. These components help treat an estimated 45,000 m³ of water per day.
- AUSTRALIA - Perth and Sydney: DOW FILMTEC™ elements are installed at three of the largest desalination facilities in the Southern Hemisphere. The Perth Seawater Desalination Plant treats 144,000 m³ of seawater per day and at its inception became Perth's biggest single water source, providing some 17% of the city's supply needs. The Southern Seawater Desalination Plant (stage 1) outside of Perth uses DOW FILMTEC elements in a two-pass RO system for seawater and brackish water, producing 50 billion liters of drinking water annually. The Sydney Desalination Plant's capacity can provide up to 15% of Sydney's clean water supply.
- USA - Tampa Bay: DOW FILMTEC™ membranes produce 25 million gallons of potable water per day at the Tampa Bay Seawater Desalination Plant in Florida, the largest of its kind in the United States.

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