



MEGA PARTNERS WITH MAK WATER AS EXCLUSIVE OCEANIA DISTRIBUTOR OF ELECTRO MEMBRANE WATER TECHNOLOGIES

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MAK WATER IS EXCITED TO ADD A NEW RANGE OF WATER PURIFICATION TECHNOLOGIES FROM MEGA A.S. ONE OF THE WORLD LEADERS IN ELECTROMEMBRANE TECHNOLOGIES FOR WATER TREATMENT.

MEGA Group started in the water purification industry in 1976 and is renowned worldwide for their electro-membrane water purification technologies. Headquartered in Ralském, Czech Republic and with installations around the world, including in Australia, MEGA has developed and patented many advanced water treatment technologies utilising electrically charged membranes.

MAK Water is proud to be partnering with MEGA to bring advanced Electrodialysis and Electrodeionisation water treatment technologies to our valued customers in Australia.

ELECTRODIALYSIS (ED + EDR)

Electrodialysis (ED) is a modern electromembrane separation technology, controlled by an electric field gradient to move dissociated ions through membranes with the goal of the removing dissolved solids.

Advantages of MEGA Electro Dialysis in water treatment

- High water recovery up to 95 %.
- High concentration of brine TDS up to 200 g/l.
- Less susceptibility to organic fouling.
- Tolerance to free residual chlorine.
- Silica does not affect water recovery.
- 10+ years of membrane lifetime.

As an option, a system can be upgraded with the electrodialysis reversal system (EDR) featuring a self-cleaning electrodialysis process.

EXAMPLE APPLICATIONS OF ELECTRODIALYSIS TECHNOLOGY:

- Desalination of high -silica water.
- RO brine treatment.

- Condensate treatment from fertiliser production (NPK, NH_4NO_3).
- Cooling tower blowdown treatment.
- Zero Liquid Discharge processes

ELECTRODIALYSIS WITH BIPOLAR MEMBRANES (EDBM)

The MEGA electro dialysis bipolar membrane process (EDBM) is based on the unique property of bipolar membranes – electro-dissociation of water. EDBM effectively divides water into H^+ and OH^- , and in the process converts waste salts into acids and bases.

Advantages of MEGA Bipolar Electrodialysis:

- High limits for feed water hardness.
- Long lifetime.
- Low-maintenance modules.
- Elimination of thermal treatment.
- Reduction of wastewater.
- Production of acid/caustic for reuse.
- Unique low-cost membranes
- High resistivity against organic fouling.
- Tolerance of chlorine.
- Resistance to scaling.
- Silica does not affect EDR performance.

ED is suitable technology for the following cases:

- Treatment of water with a higher tendency to fouling or variable quality of feed.
- High recovery is required.
- High concentration of concentrate is required (up to 200 g/l).
- High silica waters.
- Suitable for existing plants without need of external pre-treatment.

ELECTRODEIONISATION (EDI)

Electrodeionisation is a highly cost-effective continuous membrane process for water polishing, removing ions, salts, organic acids, and other charged substances from the water. An EDI system requires no chemicals for its operation and produces no hazardous waste. Therefore, EDI is the key technology to replace conventional mixed bed ion exchange, which requires onsite or offsite chemical regeneration.

EDI is used to produce high purity water and it is usually operated after a reverse osmosis system.

Advantages of MEGA Electrodeionisation (EDI):

- Industrial EDI modules capable of reaching 18.2 MΩ·cm product water resistivity.
- Modular systems covering flowrates from 0.8 m³/h to 135 m³/h and beyond
- Green technology with lower operating costs and high recovery.
- Easy and safe maintenance.
- Small footprint – suitable for operation inside containers.
- Continuous operation with no regeneration needs.
- Modularity and redundancy – cube-shaped modules offer different options of interconnection.
- Option for direct discharge of electrode stream.
- Compact, durable, long-lifetime patented design.
- Using conventional mixed bed technology, the cation and anion resins must be regularly regenerated by acid and caustic, not so with EDI technology.

Industrial applications of MEGA continuous electrodeionisation

- Energy and heating industry – boiler feed water,
- Oil & gas and petrochemical industries,
- Chemical industry,
- Food & beverage industry,
- Pharmaceutical industry.

The benefits of continuous EDI compared to conventional MIXED BED technology

- Stable water quality.
- Low capital and operating costs.

- Continuous and simple operation.
- No need for acid-based regeneration.
- Small footprint.
- Effective redundancy.

To discuss how these products could be applied to your water situation, [contact us](#) now.