Water Technologies & Solutions

Electrodialysis Reversal (EDR)

ready for the resource revolution

suez

what SUEZ offers

SUEZ offers the broadest water and process technologies solutions portfolio—we focus on difficult-to-treat water and wastewater, and implementing water reuse solutions to provide customers with the quantity and quality of water they need for their applications.

With over 50 years of ED-EDR technology experience, we have the technical knowledge and process expertise to design solutions that are reliable and cost effective for your water purification needs. With 900+ EDR installations globally, SUEZ offers a depth of experience for the design, manufacturing, installation, operation and maintenance of your EDR system.

customer benefits

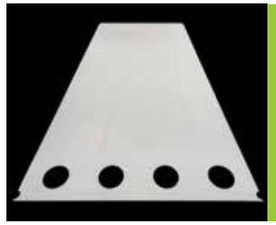
- Simplified operation and lower capital costs with the SUEZ carbon electrode
- Up to 95% TDS reduction on brackish water
- Up to 94% water recovery
- Requires less pretreatment for suspended solids
- High silica levels do not impact performance or water recovery
- Handles high organic waters
- Up to 0.5 mg/l continuous chlorine feed and capable of shock treatments

new developments in EDR technology

Carbon Electrode

SUEZ has developed a new electrode which will become the standard electrode for all new SUEZ EDR systems and can also be used in upgrades to existing EDR systems.

- The Carbon Electrode surface is coated with the same ion exchange resin that is contained in SUEZ's membranes. This provides the new carbon electrodes with a more durable, longer lasting surface than in the existing electrodes. The current electrode has a life-expectancy of approximately three years. With the new carbon electrode, customers can achieve a longer life-expectancy.
- With the new carbon electrode, the capital expense and long-term operating expense is less than half the cost per stack than the existing electrode.
- The new Carbon Electrode produces no gas or chemicals, simplifying the EDR system by eliminating the need for degasifiers.
- Electrode scaling is nearly eliminated. Additional electrode CIP beyond regular stack CIP is unnecessary in most cases.



AR908 membrane

SUEZ has developed a new caustic-stable ion exchange membrane for ED that allows for more aggressive CIP of EDR stacks.

- AR908 membranes allow EDR stacks to be cleaned up to pH 13, to keep stacks clean while processing higher turbidity wastewaters.
- AR908 has shown reduction in membrane spalling, which means longer membrane life for more aggressive applications.
- The ability to more aggressively clean the EDR stacks means less stack maintenance to open stacks for manual cleaning.
- Pre-treatment for EDR can be reduced to cartridge filter or a clarifier for more aggressive wastewaters.
- The AR908 may be used interchangeably with AR204 to allow for gradual replacement.

EDR for drinking water

In drinking water applications where source water is challenging due to high TDS or high silica, EDR provides the most reliable and lowest life-cycle cost. EDR also offers the highest water recovery for brackish water treatment, reducing the strain in water scarce areas.

a drinking water success story

Challenge: Located in Abrera, Barcelona, Spain, Aigues Ter-Llobregat's (ATLL) drinking water treatment plant was plagued by poor water quality with significant seasonal variations, water scarcity and regulatory concerns.

Solution: ATLL chose SUEZ's EDR technology, after piloting both EDR and RO for over two years, to reduce dissolved solids and organic matter in its water supply in order to meet treatment goals and increase water quality.

Results: The SUEZ EDR water treatment system currently provides quality, reliable drinking water for nearly 20% of Barcelona's metropolitan region. The plant is capable of producing 59 million gpd (220,000 m3/day) of product water, which blends back into the effluent of the existing treatment plant. The SUEZ EDR solution also provides ease of operation and maintenance. Despite the Llobregat River's changing feedwater quality, SUEZ's EDR systems are able to adapt to changing temperatures and salinity without disrupting the quality of water production. The plant operates at a 90% water recovery, which addresses the water scarcity conditions in the region.

EDR for wastewater reuse

Using EDR to treat and reuse wastewater makes sense. Because of the polarity reversal design, EDR is a self-cleaning, durable membrane system ideal for turbid wastewater. EDR technology achieves the highest water recovery for water scarce areas. Our wastewater EDR systems reclaim more than 20 million gpd (75,000 m3/d) of wastewater for irrigation purposes.

a wastewater success story

city of San Diego uses EDR technology to reuse tertiary wastewate

Challenge: The City of San Diego, California, USA needed to meet the ever-increasing challenge of developing adequate drinking water supplies to satisfy continuous regional development. New sources of fresh water are not readily available.

Solution: They turned to SUEZ to reclaim wastewater for irrigation using EDR technology. The tertiary treated wastewater provides high quality irrigation water, thereby reducing demand on the fresh water supply. The wastewater supply to be treated has salinity levels up to 1300 ppm TDS during the summer and early fall.

Results: The SUEZ EDR treatment system has a capacity of 6.6 million gpd (25,000 m3/day) that is blended with up to 15 million gpd (58,000 m3/day) of irrigation water for golf courses, new home developments and other water reuse applications.

the SUEZ advantage

speed

- Quick delivery
- 100% Complete documentation
- Pre-engineered
- Configurable options
- Worldwide manufacturing on four major continents

reliable performance

- Largest provider of EDR systems in the world
- World-class designs
- Proven technology for hard-to-treat brackish water

one source

- Systems integration
- Vertical technology integration
- Trusted performance
- Technical expertise
- Pilot plants

an EDR platform that meets your needs

SUEZ EDR systems suit multiple applications, including:

- Reducing Total Dissolved Solids (TDS), as well as problematic contaminants such as radium, arsenic, perchlorate, fluoride, nitrate, hardness and selenium in drinking water. In some cases THM precursors are also removed.
- Recycling municipal and industrial wastewater.
- Recovering reverse osmosis reject.
- Desalting well and surface waters.
- Desalting water for boiler makeup and other industrial uses.

If you would like to know how EDR can solve your drinking water or wastewater reuse challenges, contact your local SUEZ representative.

Find a contact near you by visiting www.suezwatertechnologies.com and clicking on "Contact Us."

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