SIBELCO

CONTRIBUTING TO A BETTER WORLD

Sands and gravels for pre-treatment prior to desalination

Sibelco strives to contribute to a better world through creating solutions to the challenges of global sustainability. One such challenge, arguably the most fundamental, is ensuring there is sufficient clean water for all of us. Just seven years from now, 1.8 billion people are expected to live in regions with water scarcity. Furthermore, by 2050 demand is expected to have outstripped supply by 56%.

To meet global water demand, desalination provides a sustainable solution by converting non-traditional water resources such as sea and brackish water into water suitable for human consumption, industry and agriculture.

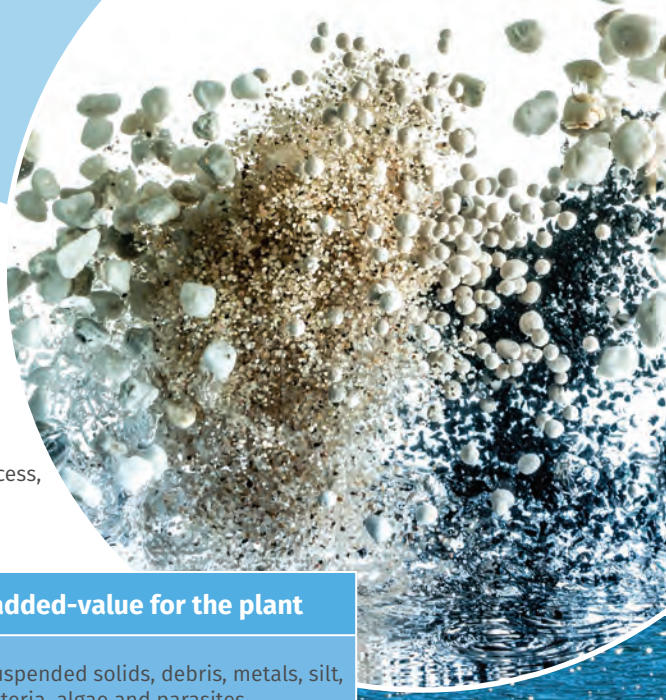
Three years ago, global desalination capacity already stood at 80 million cubic metres per day. It's expected this figure will double by 2030. More than 300 million people yet rely on desalinated water with almost half the capacity located in the Middle East and North Africa. To meet the needs of those people and millions more, it will be vital desalination plants operate at optimum efficiency.

1.8 bn
people expected to live in regions with water scarcity in seven years time

56%
the proportion by which water demand will outstrip supply in 2050

160 m^3
expected global desalination capacity per day in 2030

Maximizing performance and minimizing cost of desalination



Different desalination technologies, including reverse osmosis and thermal desalination, share the need for feed water pre-treatment prior to desalination, in order to remove particulate seawater contaminants that can damage equipment such as membranes and hinder their performance.

Sibelco's calibrated sands and gravels are used during pre-treatment to increase the quality of the feed water in order to enhance the productivity of the desalination process, extend the membrane lifetime and reduce maintenance and operational costs.

From Sibelco's product benefits	To the added-value for the plant
Long lasting filter media (20 to 30 years, much longer than other filtration techniques with lifetimes of only 5 to 10 years)	Removal of suspended solids, debris, metals, silt, bacteria, algae and parasites
High filter bed porosity hence long filter runs, optimal filter bed use and high contaminant storage capacity	Reduced SDI
High hydraulic flow hence high production rate	Decreased membrane fouling and clogging
High filter media cleanliness	Higher membrane capacity to remove salts and other dissolved minerals
Effective filtration	Reduced damage to the membranes and increased sustainability of the membranes
Low head loss	Lower membrane maintenance and chemical cleaning
Efficient backwashing	Lower energy consumption thanks to enhanced membrane performance
Efficient in aggressive water	
Large surface area	
Minimum clogging	
High cost effectiveness	

Our technical team is dedicated to helping you achieve the best desalination pre-treatment and looks forward to working with you to develop new products adapted to your specific filtration needs. Don't hesitate to contact us at environment@sibelco.com

Discover how we've helped Shuqaiq

As an example, Sibelco has supplied filter sands and gravels to Mitsubishi's Shuqaiq 2 Independent Water and Power Project for the Assir region of Saudi Arabia. Saudi Arabia is the country with the largest production of desalinated water in the world, generating 7.6 million cubic metres a day.

At Shuqaiq, Sibelco's sand and gravel are used in rapid multimedia filters to remove silts, solids, bacteria and parasites before the water is passed through micron cartridge filters prior to membrane treatment. This reduces fouling and clogging of the membrane which, in turn, allows for less frequent backwashing, higher water throughput, lower energy and backwash water consumption, plus a longer working life for the membranes and a great reduction in maintenance and operational costs.

Using our sands and gravels, Shuqaiq produces over 200,000 cubic metres of clean water each day and can deal with the frequent severe sand storms during summer, which create high seawater turbidity. Sibelco is proud of this contribution to the supply of the world's most precious, and under pressure, commodity – water.

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