



Osmotech®

Complete and Innovative
Treatment for Reverse Osmosis
and other Membrane Systems

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Reverse osmosis has become a prime source of drinking water and make-up water for industrial processes. Loss of performance of reverse osmosis membranes is mainly due to fouling, scale-forming salts and biological contamination, or the insufficient pretreatment of make-up water.

What is Fouling?

Blocking of the membrane due to contamination by any kind of particulate material is known as fouling. It can be caused by suspended colloidal particles or indeed, be a biological contamination on the surface of the membrane (bio-fouling).

What is Scaling?

During the reverse osmosis (RO) process, a salt solution flows along a membrane and is concentrated to a certain level. When the concentrations of the dissolved salts exceed their solubility levels, the salts may precipitate. A crystalline layer is formed which is known as scaling.



Any kind of fouling is not desired, as it will imply losing filtration performance and water quality, increase of operational costs and plant breakdown.

Most of the developments done nowadays in Desalination Engineering are dedicated to Operation Cost Reduction: development of Brine Energy Recovery Systems and Energy effective membrane and plant designs. It has been demonstrated that the presence of fouling and deposits on the membranes has a strong negative impact on energy consumption. The application and design of a correct water treatment program not only will reduce the plant operational costs, but also will improve the performance of the plant allowing high recovery rates, granting smooth operation, reducing the number of cleaning steps and improving efficiency.

With decades of experience in Water Treatment, BKG Water Solutions combines innovative technologies and services. Thanks to our intensive research and development we can offer an extensive range of products. Specifically for Membrane processes we developed the product line: Osmotech®.

Osmotech® technologies prevent membrane fouling and scaling as well as clean the membranes from all contaminants that might be encountered.

Osmotech® helps you optimizing the efficiency of your membrane processes, achieving the greatest economy and long-term operational reliability.

Antiscalants

Osmotech® prevents membrane fouling, reduces the frequency of cleaning and thus increases membrane performance and lifetime. A full range of antiscalants is available with specific programs against precipitation of various salts, e.g. based on:

- » Calcium and magnesium hardness deposits
- » Calcium phosphate and calcium fluoride
- » Calcium, barium and strontium sulphate
- » Iron oxide
- » Silica and manganese

The essential properties of Osmotech® products are scale inhibition and hardness stabilization. In the sub-stoichiometric range, they show the so-called Threshold effect. Beyond the stabilisation limit a non-adherent amorphous crystal is obtained so that they can be easily rejected from the membrane system by means of the brine flow and its “sweeping effect”. Furthermore, the dispersants delay the sedimentation of mineral sludge in RO systems. They transfer sludge deposits into the aqueous phase and remove them from the system in the concentrate flow.

Products with KIWA approval
for the preparation of
drinking water available

Cleaners

Discover the performance of Osmotech® formulated cleaners for your membrane systems.

As a very important step in maintenance programs, cleaning allows restoration of peak membrane performance.

Our full range of acid, alkali or enzyme based cleaners were tested in our membrane-dedicated laboratory for efficiency and compatibility with main types of membranes. Applied according to customized procedures, they will remove all possible contaminants that might be encountered.

Type of deposits or contamination	Type of cleaners
Inorganic	Blends of inorganic and organic acids
Organic or colloidal fouling	Optimized combinations of complexants, alkali, caustic soda, potassium hydroxide, anionic and non-ionic detergents, phosphates
Biological	Alkaline and/or enzymatic cleaners

Pretreatment and Auxiliaries

Biocides & Disinfectants

Additional to the classical treatment with oxidizing biocides, BKG Water Solutions has developed a full range of environmental friendly non-oxidizing biocides which allow a direct contact with the membrane for a better disinfection and control of bacteria, fungi, and algae growth in membrane systems.

Chlorine and Oxidizing Biocide Removers

Products to protect the membrane from the attack of aggressive biocides

Flocculants & Coagulants

Products to achieve the best quality of make-up water for your membrane systems

Attention: Use biocides safely. Always read label and product information before use.

Comprehensive service

- » Exhaustive survey of your system under working conditions
- » Membrane autopsy with full report
- » Water analysis, including calculation of the scaling tendency
- » Deposit analysis
- » Microbial analysis, including identification of type
- » Hydrobio® test kit, especially developed for the determination of biofilm in water systems
- » Pilot plants scale up (process design)

- » On-site analyses and treatment control
- » RO-Soft program for best definition of treatment and dose rate
- » Specific cleaning programs
- » Plant audits
- » Jar test, for the selection of the best pre-treatment

Osmotech® can be applied not only in RO units but also in other membrane processes (ultrafiltration, nanofiltration)



For reverse osmosis and other membrane processes

Headquarters Germany
Switzerland & Benelux

BK Giulini GmbH
Giulinistraße 2
D - 67065 Ludwigshafen
Phone: +49 621 5709-01
Fax: +49 621 5709-237

BK Giulini GmbH
Niederheider Str. 22
Building Y20
D - 40589 Düsseldorf
Phone: +49 211 797 9190
Fax: +49 211 798 2262

www.bkgwater.com
www.bk-giulini.com

E-Mail: water.solutions@bk-giulini.com

France &
North Africa

BKG France SAS
Bât. 5 -
24 avenue Joannès Masset
F - 69009 Lyon
Phone: +33 478 43 42 50
Fax: +33 478 83 34 78

Greece

BK Giulini
82 Georgiou Papandreou Str.
Metamorfoosi, Attiki
GR - Athens
Phone: +30 210 28 37 559
Fax: +30 210 28 37 601

Poland & Central
Eastern Europe

BK Giulini
Polska Sp. z o.o.
ul. Farbiarska 19
PL - 02-862 Warszawa
Phone: +48 22 643 92 95
Fax: +48 22 643 85 02

Iberica

BK Giulini GmbH (sucursal España)
Camí de can Calders 8 A 2on 1a
08173 Sant Cugat del Vallès
E - Barcelona
Phone: +34 93 675 0345
Fax: +34 93 590 7393

Turkey &
Middle East

**BK Giulini Kimya Sanayi
ve Ticaret A.Ş**
Prof. Alaeddin Yavaşca sok.
Efe apt. No: 6/3
TR-Macka - 34357 Istanbul
Phone: +90 212 259 19 02
Fax: +90 212 261 25 92

Italy

**BK Giulini GmbH
Filiale Italia**
Via Monteverdi 11
I - 20131 Milano
Phone: +39 02 295 164 53
Fax: +39 02 294 082 59