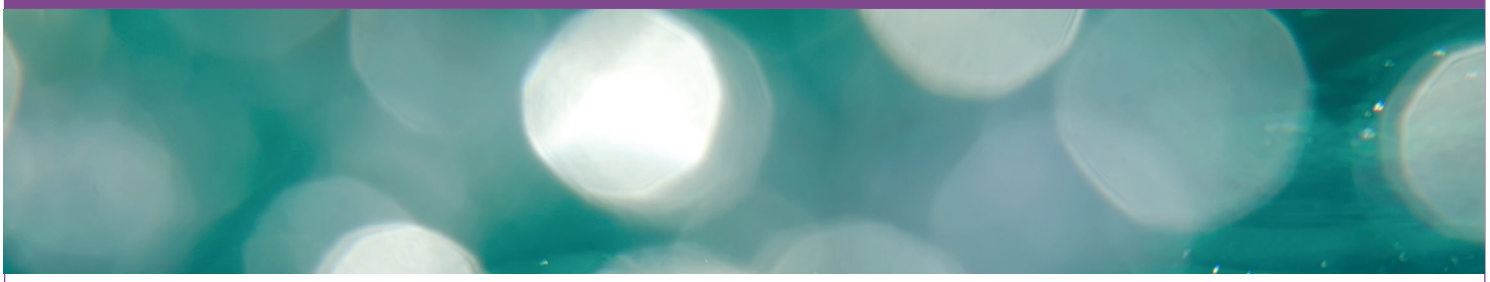
ANOXKALDNES

Tracer™ High Salinity



Treatment of high salinity wastewaters with AnoxKaldnes™ Moving Bed Biofilm Reactors (MBBRs)

Some wastewaters contain a high salinity content, which is most commonly measured as high chloride- or total dissolved solids (TDS) concentrations. Different salts can be present in these wastewater including not only NaCl, but also sulphate and carbonate salts. Depending on its origins, these wastewaters can also contain different organic and/or inorganic substances that need to be removed before safe discharge into a water body.

Biological treatment of High Salinity wastewaters

Biofilm processes are more tolerant to salinity variations compared to suspended-biomass processes due to the protection that the biofilm matrix provides. AnoxKaldnes™ MBBR processes have been used for treating wastewaters with salinity concentrations of up to 90 g of chlorides per L. For example, wastewaters containing different organics, even toxic compounds, have been successfully treated with AnoxKaldnes™MBBRs and nitrification has been demonstrated for brackish waters.

Why is it challenging to treat wastewaters with high salinity?

The treatment of high salinity wastewaters for the removal of carbon can be challenging for several different reasons. In biological treatment where microorganisms are in charge of the removal of contaminants, a high osmotic pressure from high salt contents can challenge microbial activity and biological treatment.

Variations in salt contents are commonly observed in some wastewaters and these can not only decrease biological activity, but also lead to poor sludge biomass separability in gravity clarifiers.

When treating wastewaters high in salinity, attention needs to be paid to the choice of materials in the treatment plant. High salinity wastewaters are corrosive to the normal grades of steel and the choice of suitable materials is key. An additional challenge when treating high salinity wastewaters is the use of suitable analytical methods for high-salt contents in the wastewater. Many of the most common chemical analytical methods used in wastewater treatment suffer from interferences at high chloride concentrations.

High Salinity wastewaters

High salinity wastewaters can originate from different industrial sectors, such as oil & gas, aquaculture, food & beverage production, specifically related to the production and packaging of seafood, and the chemical industry. The so-called produced water is a brackish or saline byproduct from the extraction of oil and natural gas. Pickled food industries can also release high salinity wastewaters. Some municipal wastewaters can also contain high salt concentrations if there is leakage of sea water into the sewage system.

Industrial applications for Tracer™ High Salinity MBBRs

Food and beverage

Chemicals

Aquaculture

Oil and Gas

Municipal
(vicinity to the sea)

Using AnoxKaldnes technologies to treat High Salinity wastewaters

AnoxKaldnes with other Veolia Water Technologies subsidiaries have demonstrated the technical feasibility of using Tracer™ High Salinity MBBRs for the treatment of contaminated effluents high in salinity. From bench-scale testing, full-scale process solutions have been built for the efficient treatment of high salinity wastewaters.

AnoxKaldnes has the expertise to face the challenges in the biological treatment of wastewaters with high salinity contents, including the knowledge of what chemical analyses to apply and which materials to choose.

Feel free to contact us for more information about how AnoxKaldnes Tracer™ technology creates new possibilities in biologically removing harmful compounds in industrial wastewater.

AnoxKaldnes • Veolia Water Technologies
Klosterängsvägen 11A • 226 47 Lund • Sweden
Office: +46 (0)46 18 21 50
www.anoxkaldnes.com

ANOXKALDNES
by VEOLIA Water Technologies