

# glacier

## FREEZE DESALINATION TECHNOLOGY



PROXA is a dominant player in the water and wastewater treatment sector, servicing major global clients. It is the company's commitment to extracting value from brine and through Eutectic Freeze Crystallisation (EFC), that sets PROXA apart as visionary leaders in the industry.

PROXA is proud to announce GLACIER - an optimised EFC solution to recover high purity by-product salts from complex mixed brines.

This innovative process is highly sustainable, does not produce any toxic waste and uses significantly less energy than traditional thermal evaporation and crystalliser.

EFC is a technology that rests upon cooling a brine or salty effluent solution down to its lowest possible temperature of solidification, known as the eutectic point. At this stage, salts selectively crystallise and sink to the bottom while pure ice forms and floats to the top, effectively separating the solution into high quality water and valuable salt by-products.

### A TRUE ZLD SOLUTION FOR BY-PRODUCT RECOVERY FROM MINE WATER

The GLACIER process recovers several by-products from contaminated mine water in a single, integrated process. Examples include:

- ◇ Calcium carbonate
- ◇ Calcium sulphate
- ◇ Magnesium sulphate or magnesium hydroxide
- ◇ Sodium sulphate
- ◇ Sodium chloride

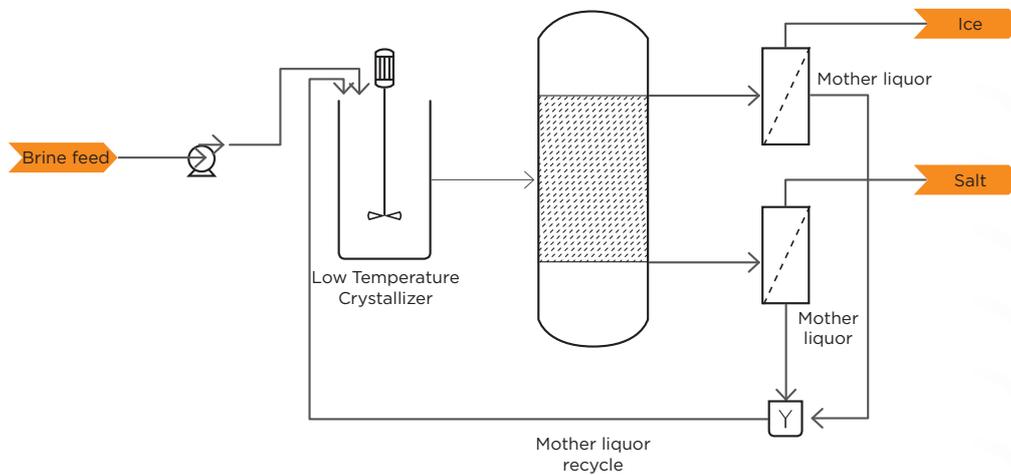
### BENEFITS

- ◇ Low corrosion risk
- ◇ Low scaling risk
- ◇ Simple materials of construction
- ◇ Energy efficient



## FUNDAMENTALS

The GLACIER process utilises the principles of freeze concentration and eutectic freeze crystallisation to separate high purity salts from impure, mixed brines.



## CASE STUDY - ANGLO AMERICAN NEW VAAL BRINE

The Anglo American New Vaal brine treatment plant is the first full scale plant successfully using EFC technology to process 2500 kl/day of highly concentrated brine, producing up to 50 t/day of solid salt by-products. Overall product production includes:

- ◊ High quality product water, routed to the adjacent Lethabo Power Station
- ◊ High quality calcium and magnesium salts suitable for agricultural application
- ◊ Detergent grade sodium sulphate
- ◊ Mixed salt for disposal

The plant has been in continuous operation since 2014.

“By promoting the reuse of contaminated water through effective and revolutionary purification methods, PROXA offers available solutions to the major challenges stemming from the loss of potable and reusable water through industrial processes.” – Frost & Sullivan