

Organic Pollutants Handling during Effective concentration of Unsaturated Salt-streams for re-use

Publieke samenvatting / Public summary

Aanleiding

Many industrial processes produce moderate flows of salty waste water which often contain organic components. Concentrating such streams before further handling / treatment is often needed. Volume reduction of waste streams is preferred for cost, energy consumption and environmental reasons. Moreover, this will enable better removal of organics and recovery of salts and purified water from the waste streams in a later stage. MEE (Multi Effect Evaporation), applied on large(r) industrial process streams, uses steel based equipment and is in general too expensive to be used for the typical waste brine flow ranges. For such streams more cost effective concentration alternatives may be offered by (combination of) more innovative modern separation technologies, such as MD (membrane distillation) or FC (freeze crystallisation).

Doelstelling

The project aims to offer a cost effective alternative for MEE (Multi Effect Evaporation) to concentrate typical salty waste water process streams, often also containing organic components, up to salt saturation level, whilst separating clean water for re-use, based on existing novel separation technologies like MD and (E)FC instead of MEE.

Korte omschrijving

The research questions regarding the MD and FC technologies that need to be tackled in the current

Projectinformatie / Project information

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TKITOEWP-20-10

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€ 290.000,00

Algemene informatie / General information

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project are related to: - The techno-economic feasibility of these technologies for concentrating salty (waste) streams with high salt concentrations (in excess of sea water salt concentrations in the feed) - The effect of a variety of dissolved organics in the salty (waste) water on the performance of the selected technologies - The effect of scaling up for FC and scaling out for MD on operability and economic feasibility of the technologies. Activities will comprise test and development work on lab scale with model, representative and real process streams and a pilot experiment and duration test with a representative case in an industrial environment. To achieve these objectives, a structured project approach will be used and the work will be divided into five different work packages.

Resultaat

The project should clarify best (combination of) technologies for selected process streams, further development / optimization of the technologies and readiness to enter TRL 7 in a next stage following the OrPHEUS project.

De data in deze applicatie is afkomstig van de Rijksdienst voor Ondernemend Nederland (RVO) en wordt in samenwerking met de Topsector Energie ontsloten.

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