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# Modelling of an innovative membrane crystallizer for the production of Magnesium Hydroxide from waste brine

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- (ii) seawater as the feed [1].

## **Results and Discussion**







#### **Time Integration**

Mass balance equations for both tanks to determine concentrations in the two tanks. When a certain Mg<sup>2+</sup> conversion is reached, the mass balances are modified, considering the Feed & Bleed configuration.

**Anionic Exchange** Membrane (AEM)

**Brine/Alkaline** compartment

### **Batch configuration**

![](_page_0_Figure_17.jpeg)

magnesium hydroxide from seawater and industrial brines, Membranes (Basel). 10 (2020) 1–14. doi:10.3390/membranes10110303.

### **References:**

[2] F. Vassallo, C. Morgante, G. Battaglia, D. La Corte, M. Micari, A. Cipollina, A. Tamburini, G. Micale, A simulation tool for ion exchange membrane

crystallization of magnesium hydroxide from waste brine, Chem. Eng. Res. Des. 173 (2021) 193–205. doi:10.1016/j.cherd.2021.07.008.

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**Spatial Integration** 

Mass balance equations for each  $\Delta x$  in

which both channels are discretized to

calculate the outlet ionic concentrations

and flow rates of the reactor.

![](_page_0_Picture_26.jpeg)