

A Lithium Ion Selective Membrane Coupled to a Chlor-Alkali Electrolysis Cell to Concentrate Lithium from Salton Sea Brines and Produce LiOH and Other Valuable Chemical Products in One Step

Keywords: Lithium ion selective membrane, chlor-alkali process, green hydrogen

Innovation tagline: We will develop a commercially viable technology that not only selectively extracts lithium ions from brines but accomplishes this in an electrochemical cell that also directly produces lithium hydroxide (the preferred form for lithium battery production) and also produces green hydrogen and chlorine both commercially valuable commodity chemicals. The heart of this innovative technology is a highly lithium ion selective membrane constructed from a highly ordered two dimensional covalent organic framework (2D-COF) polymer that has precisely designed negatively charged pores that are small enough to reject other cations in the brine but selectively pass lithium ions to concentrate them on the hydroxide producing cathode compartment in a chlor-alkali electrolysis cell.

Link to 90-second video: <https://youtu.be/XBU2NJa0zM0>

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<https://youtu.be/3bGcm51zbOI>

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Connectors:

Wyonano LLC – Small Wyoming business. Zachory Gray, CEO, Hoberg and Parkinson have an STTR grant through NSF to work with Wyonano on commercialization of desalinization membranes constructed from our 2D-COF polymers.

Impact 307 – University of Wyoming business incubator. <https://impact307.org>