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Going big with forward osmosis

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ABSTRACT

The frontier of water treatment technologies is being defined by hybrid processes and thoughtful design integration within treatment trains. The use of increasingly sophisticated process trains is driven by the need to treat dramatically impaired water supplies while maintaining low cost, high utilization, and high operational flexibility. Integrating forward osmosis (FO) technology is one notable, emerging opportunity to realize substantial advantages in cost and performance compared to the use of either conventional membrane processes or thermal technologies. Reverse osmosis technology remains ideally suited to desalinate low fouling streams to moderate levels of recovery. Spr ay dryers or crystallizers employing mechanical or thermal vapor compression cycles are still best used to convert saturated or organic rich liquors to solid products. But what of the multitude of waters, especially industrial streams, that are too saline or high in foulants to be well treated by reverse osmosis and are not of high enough value to warrant direct crystallization? The traditional answer defaults to a 90 + year old technology in the thermal brine concentrator. Today, Oasys Water is offering an alternative solution by using thermolytic draw solutions to enable FO processes that challenge traditional treatment paradigms in diverse commercial applications.

Keywords: Forward osmosis; Brine concentration; Membrane processes; Industrial wastewater treatment; Flue gas desulfurization

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