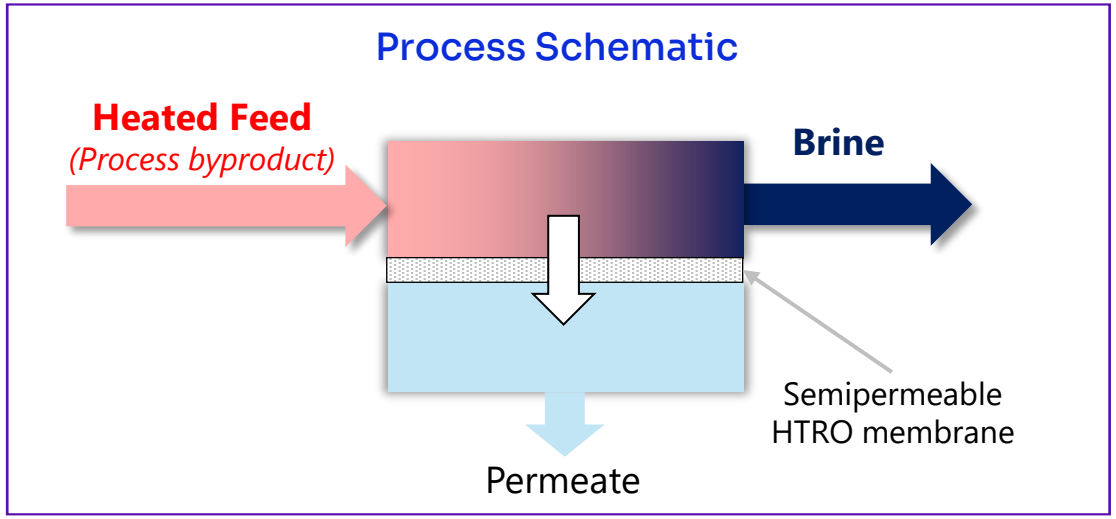
High Temperature Reverse Osmosis (HTRO)

Process Description

HTRO is a pressure-driven membrane desalination process that can be operated at elevated feed temperatures as compared to conventional reverse osmosis (RO) membranes.

Similar to conventional RO, hydraulic pressure is applied to overcome the osmotic pressure of the feed solution, forcing water molecules through a semi-permeable membrane while rejecting dissolved salts and other contaminants. Increasing feed temperature reduces water viscosity and enhances mass transfer, resulting in higher permeate flux and lower rejection of contaminants, respectively.

HTRO is particularly attractive for treating warm process streams and industrial wastewaters where thermal energy is already available, enabling improved process efficiency and water recovery.



Publications

Evaluation of high-temperature reverse osmosis for recycling boiler blowdown in industrial applications (Link)

For further information, please contact us at email: GWSC@conocophillips.com