

# Chemical Recovery System

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## Technical Information

**Purpose** – Produce clean Caustic or Acid after being used, so that the Caustic and the Acid can be re-used for peeling, cleaning, sanitizing, or any other sanitary purpose.

**Design** – Uses a Nanofiltration or Ultrafiltration membrane in order to remove 100% of suspended solids and remove up to 98% of the dissolved solids. The membrane control and cleaning cycle are all PLC controlled.

### Design Details:

- Cleans from 4,000 GPD (gallons/day) to 100,000 GPD.
- Pre-Screen: Vibratory Screen with 150 micron screen.
- PLC Control monitors membrane for fouling and plugging.
- PLC controls cleaning and counts cleaning cycles.
- Replaceable membrane.
- Skid mounted, turn-key design.

### Membrane Details:

- Nadir Filtration NF or UF Spiral-Cel<sup>®</sup> Design.
- Material: Permanently Hydrophilic PES (Polyethersulfone)
- pH – Range: 0- 14
- Operating Temperature: 80<sup>0</sup> C (194<sup>0</sup> F), Max. Temperature: 95<sup>0</sup> C (203<sup>0</sup> F)
- Operating Pressure: 20-25 bar (300 psi to 350 psi), Max. Pressure: 40 bar (580 psi)
- Reliable, Long Life membrane.

NOTE: See [www.nadir-filtration.de](http://www.nadir-filtration.de) for reference.

Design is a economical concept of recirculation of the concentrate flow (dirty caustic or acid) until a suggested tank level is reached, upon which the remainder is dumped. The permeate (clean caustic or acid) flow is directed to a clean tank. Up to 90% of the used caustic or acid can be cleaned and re-used.

NOTE: Customer will need to provide suitable size tanks for used and clean caustic.



## ZM ENVIRONMENTAL Technologies

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Our test unit will determine, permeate flow, frequency of cleaning, necessary size of the membrane, and percentage of caustic/acid that can be recovered.

ZM Environmental Technologies offers a demo unit available for testing system operation on the customer product at the customer's plant site. The test run consists of processing 50 to 250 gallons of used caustic or acid and providing clean caustic and acid for tests done at plant site.

The following before-and-after tests will be done at plant site:  
TSS, TDS, pH, and alkalinity.

A test report will be provided before leaving plant site.

A \$ 500 fee is expected as a cover charge for expenses related to the tests performed.

Our test unit is self-contained, but the customer will need to provide the following:

- 480VAC, 20 AMPS.
- Fresh water.
- Length of hose necessary to fill caustic/acid barrel and water barrel.
- Ability to dump caustic/acid and cleaning product after use.

