

FUTURE FILTRATION

SILICON CARBIDE CERAMIC MEMBRANES

PRE-RO AT PHARMACEUTICAL COMPANY REMOVAL OF IRON, MANGANESE AND ALGAE

INTRODUCTION

In the pharmaceutical industry water plays an important role for production processes, cleaning, rinsing as well as a raw material for the product itself. This means that the water must meet very strict quality standards. However, the water supplied by public utilities or from ground water wells, is often not of the right quality, for direct use for those processes. This is because it contains a small amount of organic impurities, salts, particles and microorganism. Therefore, most pharmaceutical companies typically implement their own water treatment systems to secure high quality water for their production.

TEST WITH LIQTECH'S CERAMIC MEMBRANES

In 2009, LiqTech was approached by a Danish pharmaceutical company, who was looking for a new pretreatment system prior to their RO membranes. Their polymeric based UF system did not protect the RO membranes sufficiently due to fiber breakage and consequent high maintenance costs.

LiqTech suggested a system based on its' novel ultrafiltration SiC ceramic membranes to replace the existing membranes. After a series of small scale tests which showed excellent results in terms of water quality and performance, it was decided to implement the SiC membrane solution for the full flow of 550 m3/day.

FEATURES AND BENEFITS



The benefits of SiC ceramic membranes over traditional pre-RO technologies are numerous:

- HIGHEST flux for any membrane material which leads to very small foot print
- High material porosity and low resistance to transport of water means low energy use
- Chemically inert material (pH 0-14) and high temperatures tolerance (up to 800°C) leads to easy cleaning
- Extremely hard material equals durability and a long life time
- Easy to automate and operate

SOLUTION

The SiC membranes were installed in a cross flow filtration system with two parallel mounted elements in each loop. While one loop with two membranes produces 21 m3/h of permeate with a recovery of >95%, the second loop is being cleaned. Permeate flux is in the range of 1250-1500 LMH. Cleaning is done at approx. 70 degrees with an alkaline cleaning solution. The system is operating 24h/day - all year round.



UF system with LiqTech's SiC ceramic membranes

CONCLUSION

Since 2009, LiqTech's membranes have successfully been applied as a pre-RO step at a Danish pharmaceutical company. The SiC membranes proved to be a reliable and durable solution for pre-filtration of ground water. The benefits include improved water quality which results in a longer life time of the RO membranes and overall better RO performance.

Interested in using our SiC membranes?

LiqTech is a young and dynamic technology company and we strive to provide an excellent service to our customers. We are excited about bringing our revolutionary membrane technology to the market, where it adds value and is competitive and sound solution to many different applications.

For more information, please contact us at
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