

PORESEP

Ceramic Dynamic Filtration

PORESEP, our revolutionary solution: Ceramic Dynamic Filtration. Utilizing state-of-the-art ceramic membrane technology, our dynamic system offers unmatched efficiency and adaptability across a wide spectrum of applications, particularly focusing on water treatment.

With over two decades of expertise in membrane technology, different models of PORESEP membranes are used in customised solutions to address diverse separation requirements. We collaborate closely with our clients to develop specialised ceramic membranes and process designs, maximizing benefits and value for all stakeholders.



Ceramic Tubular Membranes

Our Ceramic Dynamic Filtration system integrates high-purity oxide ceramic membranes, such as Al_2O_3 , ZrO_2 , SiC , and TiO_2 , along with other composite materials, formulated under patented processes. These tubular membranes boast an asymmetric porous multilayer structure, ensuring resilience and longevity even in challenging environments.

Dynamic “Cross-Flow Filtration”

Our ceramic membrane system operates on the principle of dynamic “cross-flow filtration,” propelled by internal pressure from inside to outside. This innovative method guarantees efficient separation of components, allowing clear and transparent permeate to pass through the membrane layer while rejecting insoluble suspended matter, bacteria, oils, or macromolecular components, resulting in a concentrated retentate.

Ultra-Fine Separability

With pore sizes reaching down to the nanometer or molecular level, our ceramic membranes offer ultra-fine separability, facilitating precise filtration in solid-liquid and liquid-liquid separation processes.

Micron and Molecular Size Range

Our ceramic membranes are categorized based on pore size into microfiltration (MF), ultrafiltration (UF), and nanofiltration (NF) membranes, catering to diverse filtration needs across industries.



Ultra-fine separability with nanometer pore size



Excellent chemical stability, resistant to strong acids and alkalis



Oxidation and solvent stability



Superior mechanical strength with abrasive resistance



High thermal stability up to 300°C



Easy regeneration and stable performance



Back washable and thermo-sterilizable



Safe material composition without hazardous substances



Long service life, ensuring economical and reliable operation.

Applications

Water and Wastewater Treatment

- **Microfiltration:** Removal of suspended solids, bacteria, and pathogens from drinking water.
- **Ultrafiltration:** Separation of macromolecules and colloids in wastewater.
- **Ceramic Membrane Bioreactors (MBR):** Combining biological treatment with membrane filtration for municipal and industrial wastewater especially with solvents.

Food and Beverage

- **Dairy Processing:** Concentration and purification of whey and milk proteins.
- **Juice and Beverage Filtration:** Clarification and stabilisation of fruit juices and beverages.
- **Beer Filtration:** Removal of yeast and particulates during brewing.

Pharmaceutical Industry

- **Sterilization:** Filtration of sterile solutions and injectable formulations.
- **Purification:** Separation and concentration of active pharmaceutical ingredients (APIs).
- **Bioprocessing:** Downstream processing in the production of biopharmaceuticals.

Biotechnology

- **Cell Harvesting:** Separation of cells from fermentation broths.
- **Enzyme Recovery:** Purification of enzymes for various biotechnological applications.
- **Protein Concentration**

Chemical Industry

- **Catalyst Recovery:** Separation and recycling of catalyst materials.

Oil and Gas

- **Produced Water Treatment:** Treatment of wastewater generated during oil and gas extraction.
- **Enhanced Oil Recovery:** Filtration of emulsions and solids in enhanced oil recovery processes.

Textile Industry

- **Wastewater Treatment:** Removal of dyes, chemicals, and solids from textile effluents.
- **Water Reuse:** Treatment and recycling of water used in dyeing and finishing processes.

Electronics

- **Ultrapure Water Production:** Filtration for semiconductor manufacturing.
- **Chemical Mechanical Polishing (CMP):** Use in the polishing of silicon wafers.
- **Mining and Metallurgy**
- **Acid Mine Drainage Treatment:** Removal of heavy metals and contaminants from mining effluents.
- **Mineral Processing:** Separation and concentration of minerals.

