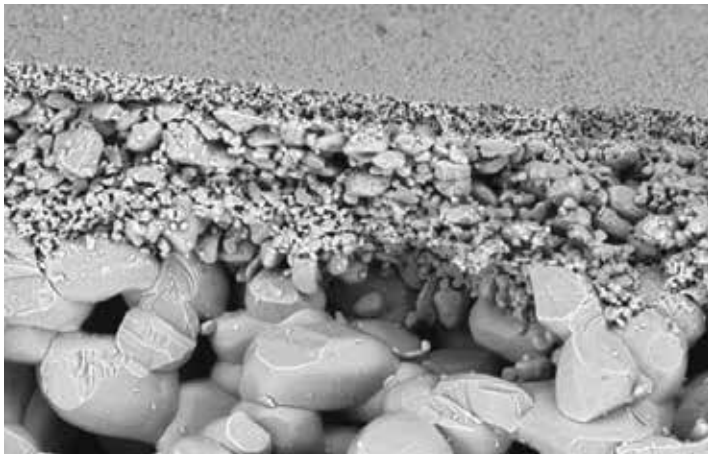
CRYSTAR® CROSSFLOW MEMBRANES FOR LIQUID FILTRATION

Main Distinguishing Features

Crystar® Filtration Technology ceramic membranes made of high purity recrystallized silicon carbide (RSiC) with an engineered microstructure. They are characterized by:

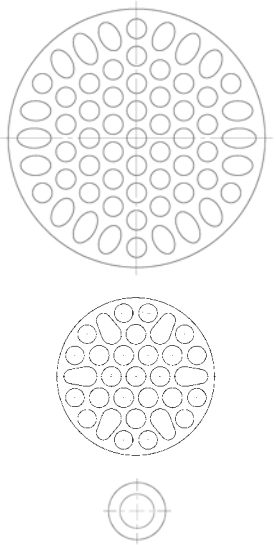
- a multilayer RSiC membrane with an engineered microstructure to ensure a ***reliable and efficient separation process*** with an excellent balance between ***retention efficiency and permeate flux***.
- a RSiC carrier material with the ***highest permeability*** in the market, which enables high ***permeate transfer*** and ***very effective backwash*** or back flush operations.



- The inherent properties of silicon carbide are perfect for the broadest range of filtration applications: excellent ***thermal stability***, superior ***thermal shock resistance*** for fast and efficient chemical cleaning (CIP – clean in place) and high ***chemical stability*** under the harshest environments.

Products

Membranes pore sizes (as measured by mercury intrusion [1])			
250 nm	600 nm	1000 nm	3000 nm
Customized pore sizes in the range 250 – 3000 nm may be produced upon request. Contact Us!			
Outer diameter (mm)	**Channels diameter (mm)**	**Filtration area (m^2/m)**	**Length (mm)**
10	6	0.018	up to 400
25	17	0.053	up to 1178
25	3	0.30	up to 1178
41	3	0.66	up to 1200



Stainless steel and PVC housings with O-ring sealing and different capacities are available for a straightforward use of Crystar® FT.

[1] Mercury intrusion is the preferred method to measure the physical pore size of porous materials.

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Benefits of Crystar® FT vs. Other Membrane Materials

Characteristics	Polymeric	Al_2O_3	TiO_2	Crystar®
Thermal shock resistance	++	+	+	**+++**
Permeability	-	+	++	**+++**
Resistance to fouling	-	+	+	**++**
Chemical resistance	-	++	++	**+++**
Temperature stability	-	++	++	**+++**
Lifetime	+	++	++	**+++**
Weight	+++	-	-	**++**

Applications

Clarification of beverages	Concentration of natural pigments
Bacteria and particulate removal from primary water or industrial and urban wastewater	Oil separation from produced water or oily wastewater
Concentration of inorganic powders	Pre-filtration prior to reverse osmosis

Retention Efficiency Measurements for Microorganisms

Crystar® FT600 (*0.6 µm* RSiC membrane)

- Escherichia Coli (size 0.5 µm x 1.5 µm): LRV = 4.2 (99.992% efficiency)
- Brevundimonas diminuta (size 0.2 µm x 0.5 µm): LRV = 3.7 (99.97% efficiency)

Crystar® FT3000 (*3.0 µm* RSiC membrane)

- Cryptosporidium Parvum (4.5 µm): LRV > 4.4 (>99.996% efficiency)
- Legionella Adelaidensis (size 0.5 x 2.0 µm): LRV > 2 (>99% efficiency)
- Pseudomonas Aeruginosa (size 0.5 x 2.0 µm): LRV > 2 (>99% efficiency)

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Saint-Gobain IndustrieKeramik Rödental GmbH
Oeslauer Straße 35 • 96472 Rödental • Germany

For more information
www.crystarfiltration.saint-gobain.com
e-mail us at crystarft@saint-gobain.com

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