



# POLYCERA<sup>®</sup>

PolyCera<sup>®</sup> Hydro

Organic Metal Membranes

[www.polyceramembranes.com](http://www.polyceramembranes.com)

# PolyCera® Hydro

PolyCera Hydro is a sub-20 nm ultrafiltration membrane that delivers 6:4:3 log removal (bacteria: virus: protozoa) with high sustainable flux operation, fouling tolerance and ease of cleaning. PolyCera Hydro is engineered for OEMs, integrators and owner/operators who need consistent, high quality filtrate, free from solid, bacteria, turbidity and other suspended contaminants.

PolyCera Hydro can be used in water / wastewater treatment, food and beverage, dairy and process separation applications.

## What Makes PolyCera Better?

### Hydrophilic

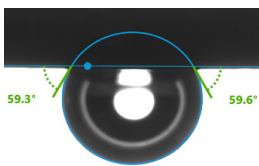
Hydrophilic means more water and lower OPEX. PolyCera membranes are constructed from a material that is intrinsically hydrophilic. This translates to:

- Maximum sustained flux
- Lower energy requirements
- Improved fouling resistance
- Easy to clean surface and pores

### How hydrophilic is PolyCera?

Captive bubble contact angle measures the extent to which hydrophobic materials will displace water from the membrane surface and stick strongly to the membrane. The lower the angle, the more the material favors water, resists fouling and cleans easily.

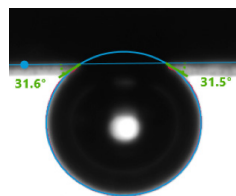
#### Hydrophilic PVDF



59.5°

Least Hydrophilic

#### PolyCera Hydro



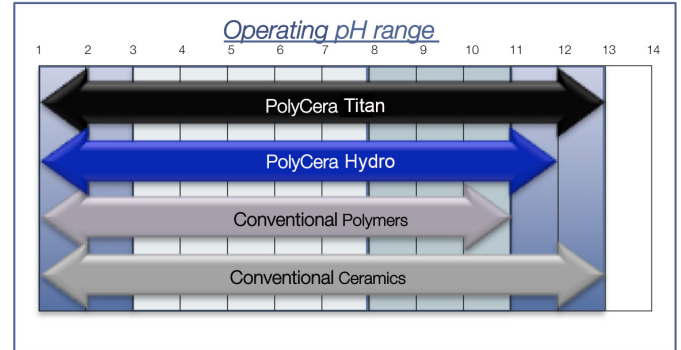
31.6°

Most Hydrophilic

Above: Captive bubble (air bubble in deionized H<sub>2</sub>O @ 25°C) with membrane lying horizontally with feed side facing down. Air is perfectly hydrophobic.

### Robust & Backwashable

Robust means lower OPEX through easier cleaning and extended membrane life. The unique electronic properties of PolyCera behave a lot like metallic and ceramic materials, which are notable for their thermal and chemical robustness.



PolyCera Hydro membranes are made by a patented process of blending PolyCera and commodity polymers, which gives rise to membranes that exhibit robustness of the commodity polymer, but with unrivaled fouling tolerance and ease of cleaning.

For OEMs, integrators and owner/operators who struggle to maintain high water throughput in tap water filtration, our PolyCera Hydro membrane is a sub-20 nm UF membrane that delivers 6:4:3 log removal (bacteria: virus: protozoa) with high sustainable flux operation, fouling tolerance and ease of cleaning.

# PolyCera Material Platform

PolyCera membranes are setting new standards of membrane performance. A totally different type of membrane –neither conventional polymer nor traditional ceramic – PolyCera is engineered with an organic metal coating derived from Nobel Prize-winning chemistry. PolyCera delivers on a goal that has never before been achieved – a membrane that provides the performance of a ceramic membrane for difficult-to-treat applications but at a competitive price point that is more reflective of traditional polymeric membranes.

PolyCera’s patented material is robust and durable, with an oleophobic and hydrophilic surface that delivers rejection with a higher permeability, fouling tolerance and improved cleanability. The exceptional performance and economic benefits of PolyCera membranes are proven in more than 100 installations around the world including applications in the oil & gas, food & beverage and process separation markets.

## PolyCera Hydro

### Applications

- POU/POE
- Surface water
- Seawater
- Groundwater
- Tertiary
- MBRs
- Food & Beverage
- Dairy
- Process Separation
- Wastewater Treatment



### Benefits

- Lowers operating cost
- Low energy demand
- Less process down-time
- Backwashable
- Maintains high flux
- Low irreversible fouling
- Handles challenging waters
- Reduces chemical demand
- Minimizes waste

PolyCera 8-inch Spiral Monolith™

# PolyCera® Membrane Products

	Pure Water Permeability*	MWCO	Max Feed Pressure	Max Backwash Pressure	Max Operating Temperature	Max pH Range	Max Oil & Grease
	gfd/psi (lmh/bar)	kDa	psi (bar)	psi (bar)	°F (°C)		mg/L
PolyCera Hydro UF	18 (450)	100	120 (8.3)	25 (1.7)	122 (50)	1 – 12	5
Conventional PVDF	6 (150)	100	120 (8.3)	5 (0.3)	122 (50)	2 – 11	5
Conventional PES	6 (150)	100	120 (8.3)	5 (0.3)	122 (50)	2 – 10	5

\* Pure water permeability performed on flat sheet product

## Case Study: PolyCera Hydro vs. PVDF

A field pilot demonstrates the superior performance of PolyCera Hydro relative to a leading competitor's PVDF membrane used in tertiary filtration of municipal secondary effluent.

PolyCera exhibited 23% increase in water recovery while providing a 20% decrease in specific energy consumption leading to a total operating expenditure savings of 38%.



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