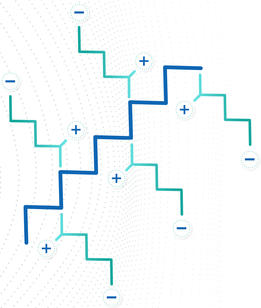
ZwitterCo

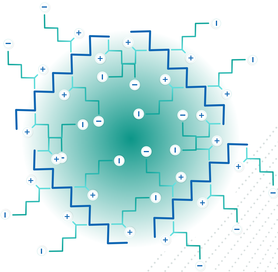
The Power of Zwitterions

A fundamentally new membrane chemistry, designed to overcome the biggest limitation in filtration: fouling.

Zwitterions are organic molecules that contain equal numbers of positively and negatively charged functional groups. Zwitterions strongly interact with water because of these charged groups, demonstrating salt-like behavior in fluid environments.

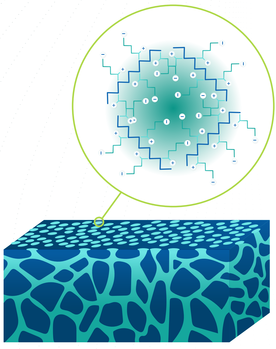
ZwitterCo's proprietary co-polymer binds hydrophilic zwitterionic molecules to strongly hydrophobic molecules. The hydrophobic molecules give the co-polymer stability in water and prevents the zwitterions from dissolving.

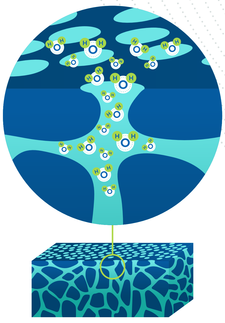




A collection of co-polymer chains orient themselves in a specific pattern. The zwitterion chains aggraggate in hydrophilic clusters, separated by groupings of hydrophobic chains. This is called "molecular self-assembly".

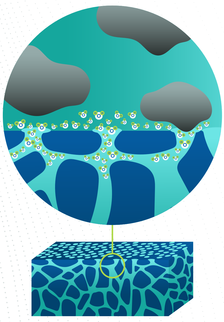
On the membrane surface, water-loving zwitterion clusters form highly precise channels, uniformly distributed across the selective layer. At the cross-section, the zwitterionic clusters at the surface form random, continuous channels throughout the selective layer, allowing passage from one end to the other.





As fluid is filtered, water molecules are attracted to the zwitterion regions and can snake through the membrane, passing from one zwitterionic chain to the next. A clean permeate stream is generated as water molecules exit the membrane free of any contaminants.

To filter effectively, a membrane has to allow some molecules to pass through, but reject or retain others; however, by retaining certain molecules–especially organic compounds like fats, oils, and proteins–traditional membranes regularly suffer from fouling. ZwitterCo's membranes work differently. The water-loving zwitterion channels pull water to the surface, actively displacing or repelling organic compounds and preventing any long-term contact that could lead to permanent fouling.



Manage your process water and wastewater with membranes that are precise, easy to clean, and built to last.

Contact us to learn more about our solutions or to try our products in your facility.

ZwitterCo
12 Cabot Road, Suite B, Woburn, MA 01801

Contact Us
zwitterco.com | sales@zwitterco.com