Chemical Compatibility
Desal Membrane Products

Various chemicals are routinely used to clean and prevent the fouling of membrane elements. The following table lists the compatibility of Desal Membrane Products with the major classifications of chemicals normally used. For best results, use factory approved Osmonics brand anti-scalants, cleaners and sanitizers for Desal Membrane Products

Membrane Types and Product Designations				
	Thin-Film: A, S, D, G and H Families G-5, G-10, g-20, G-50, G-80	**Cellulose Acetate:** CA-Series CD, CE, CG	**Polysulfone, Polyethersulfone:** E-Series, P-Series	**PVDF, PTFE Fluorocarbon:** J-Series, K-Series
Type of Chemical	Compatibility with listed classifications of chemicals:			
Organic Groups:				
Aliphatic Hydrocarbons	Yes	Yes	Yes	Yes
Aromatic Hydrocarbons	No	Yes	No	Yes
Fully Halogenated Hydrocarbons	Yes	No	Yes	Yes
Asymmetric Halogenated Hydrocarbons	No	No	No	Yes
Oxygenated Hydrocarbons:				
Alcohols	Yes	No	Yes	Yes
Ketones	No	No	No	Yes
Ethers	No	No	No	Yes
Esters	No	No	No	Yes
Acids	Yes	No	Yes	Yes
Organic Polymers:				
Cationic polyelectrolytes		Yes*		
Non-ionic filter aids		Yes*		
*Floc composed of polymer, suspended solids and other water treatment chemicals may severely foul membranes				
Oxidizing Agents:				
Hydrogen Peroxide	G-50: 100,000 ppm-days ok	Yes	5-10% for sanitation	5-10% for sanitation
Peracetic acid	Not Recommended	Yes	Yes	
Ozone	Not Recommended	No		
Potassium permanganate	Not Recommended	No		
Sodium chlorite	G-50: 100,000 ppm-days ok			
Povidine iodine	G-50: 100,000 ppm-days ok			
Chloramine T	G-50: 100,000 ppm-days ok			
Chlorine	Dechlorination Recommended**	<1ppm continuously ok;	5,000+ ppm-days	5,000+ ppm-days
	A, D Series: 1,000 ppm hours	30 ppm for 30 minutes		
	S-Series: 500 ppm hours	periodically ok.		
	H-Series:<0.1 ppm free Cl	Susceptible to		
	G-80: 1,000 ppm - days	bacteriological growth;		
	G-50: 1,000 ppm - days	inject 2-4 ppm sulfate		
	G-20: 500 ppm - days	continuously		
	G-10: 20-50 ppm - days	Easily fouls in the presence		
	G-5:	of Mg, Ca, Fe, Cl.		
**Dechlorination of all thin-film membranes with sodium bisulfite or activated carbon is recommended.				
Antiscalants:				
Houseman brand products are recommended by Osmonics	Yes	Yes		
Sodium Hexametaphosphate (generic)	Yes	Yes		
Organic antiscalants	May form gummy precipitates when mixed with other water treatment chemicals such as cationic organic polymers.			
Lubricants:				
Glyerine	Yes	Yes		
Sodium alginate	Yes	Yes		
Dove or Ivory liquid Detergent	Yes	Yes		
Vaseline	No	No		
Mineral Oil	No	No		

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Coagulants:				
Chlorides:	These coagulants are often used as pre-treatment ahead of RO systems; the end products and metal hydroxides are potential foulants. Acid cleaning is usually effective in removing these desposits if it is initiated before excessive quantities of material have accumulated			
Aluminum sulfate				
Iron sulfate				
Solvents:	Yes		Yes	
pH:	A-Series: 6.5-7.0 optimum; 4.0-11.0 recommended; 2.0-11.0 cleaning.	pH of 5.0-6.5 normally; 3-8 for periodic cleaning	Recommended operating range: 2.0-11.0 Cleaning range: 1.0-11.5	
	S-Series: 5.5-7.0 optimum; 2.0-11 recommended; 1.0-11.5 cleaning.			
	D, H Series: 2-11 recommended 1.0-11.5 cleaning; <1.0 with special construction.			
	G-Series: 2-11 recommended; 1.0-11.5 cleaning.			

Disclaimer: This document is to be used as a guideline for reference purposes only. Osmonics cannot predict actual membrane compatibility due to the variability of other factors such as feed stream species, concentrations and operating parameters.