



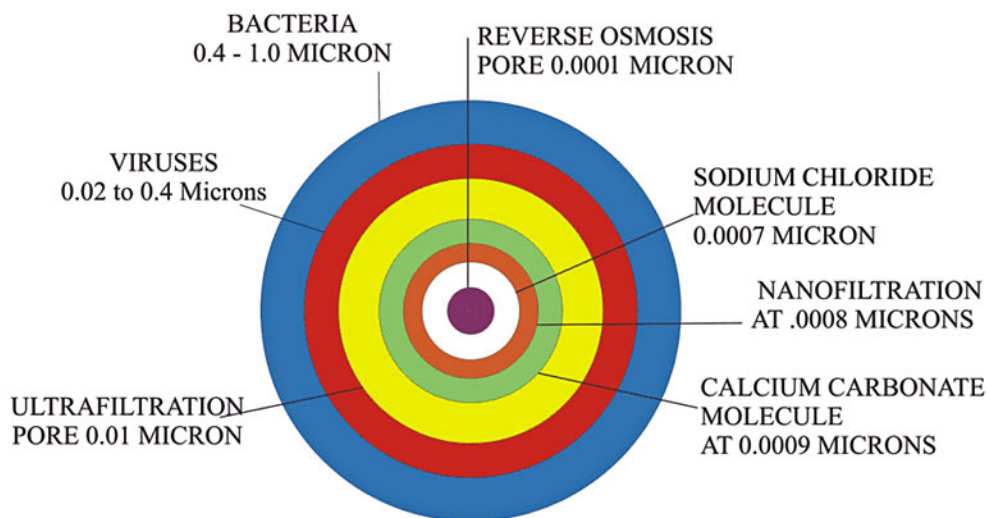
## PUREPRO Nanofiltration (NF) Membranes

### What is Nanofiltration (NF) membranes ?

Nanofiltration membrane has a slightly larger pore size than reverse osmosis membrane. Thus monovalent salts like sodium chloride (common table salt) molecules passes through the membrane but large divalent salts of Calcium, Magnesium and other metals like iron, heavy metals, etc. are all blocked.

### Reverse Osmosis Pore Size vs Nanofiltration Pore Size

The Nanofiltration pore size diagram below will help you more understand the relative pore sizes of membranes and the sizes of the common impurities.



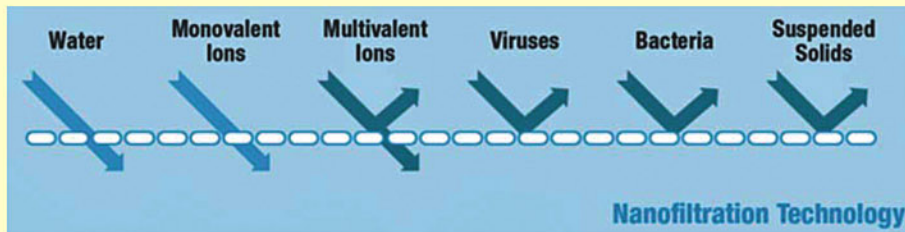
PORE SIZE COMPARED WITH MOLECULES, BACTERIA AND VIRUS  
APPROXIMATE VALUES AND FIGURE IS NOT TO SCALE

The pore size of RO membrane is 0.0001 microns which is smaller than the size of the Sodium Chloride Molecule which is 0.0007 micron and will not let it through. Nor will it let through germs and viruses, and organic molecules which are very much larger than the RO pore. So an RO membrane will purify water from almost all chemicals. What can pass through the RO membrane is water and molecules smaller than the water molecule, like CO<sub>2</sub> gas. Smaller molecules than water is generally not harmful to health. The RO Water is very pure. Bottled water manufacturers usually use reverse osmosis water filters to purify their water.

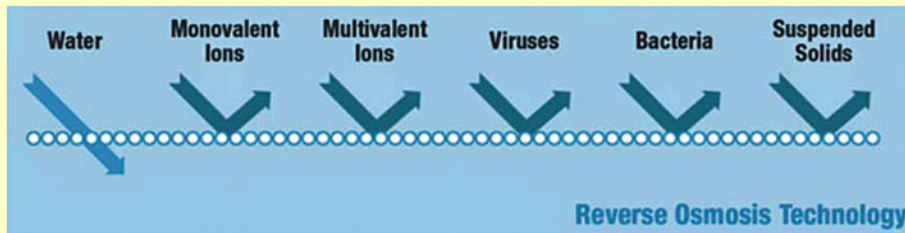
The Nanofiltration pore size at 0.0008 microns, is only slightly larger than the RO pore (0.0001 microns) and also only very slightly larger than the size of the common salt (NaCl) molecule. So it allows monovalent common salt Sodium Chloride to pass through but will not allow divalent Calcium salts like Calcium Carbonate of dia 0.0009 microns to pass through. Nanofiltration and Reverse Osmosis RO membranes remove Mercury, Lead, Heavy Metals, Arsenic, all germs and viruses from water and makes Hard Water Soft.



The diagrams below from PurePro Membranes helps us to better understand the concept of Nanofiltration and Reverse Osmosis.



Nanofiltration Membrane allows only pure water, monovalent salts and lower molecular weight divalent salts to pass through.



RO membrane only allows pure water to pass through it. Everything else like monovalent and multivalent salts, bacteria and viruses, dirt, etc. are completely blocked.



PurePro RO systems (with NF membrane) are designed for the people who still want to keep the mineral element inside the water. It is also the premier pre-filtration system available for water ionizers today. The size of the pores on the NF membrane are 0.0008 microns allowing it to remove bacteria, viruses, heavy metals, viral contaminants, and other dangerous elements while still allowing valuable minerals through for the water ionizer to ionize, and your body to absorb.



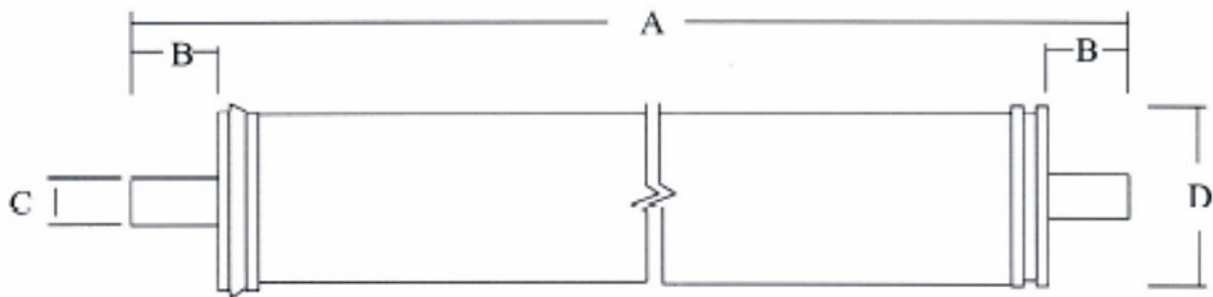
## PurePro® Nanofiltration (NF) membrane:

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Item No.	Membrane Capacity
NF33-1812- 80	80GPD
NF33-1812-100	100GPD
NF270-1812-250	250GPD
NF270-1812-300	300GPD

Remark: Membranes are made in U.S.A .

MATERIAL :	
Membrane :	Polyamide composited ( from USA )
Backing Material :	Polyester
Permeate Carrier :	Tricot
Feed Spacer :	PE
Collective Tube :	ABS
Glue :	Polyurethane
O - ring :	EPDM
External Wrap :	Opp tape



### Operation Limits

Membrane Type .....	Polyamide Thin-Film Composite
Maximum Operating Pressure .....	600 psig (41.0 bar)
Maximum Pressure Drop .....	13psi (0.9bar)
Maximum Operating Temperature .....	113°F (45°C)
pH Range, Continuous Operation .....	2-11
pH Range, Short-Term Cleaning (Max.@50°C).....	1-12
Maximum Feed water Turbidity .....	1NTU
Maximum Feed Flow Rate .....	2.0 gpm (7.6 lpm)
Maximum Feed Silt Density Index .....	5
Free Chlorine Tolerance .....	<0.1 ppm