

General FAQs to AQUA~Rock International:

RO-Reverse Osmosis Systems:

Q:

I have seen RO systems with CTA and TFC membranes. The TFC units are higher in price. Are they necessarily better than the CTA? I want a small unit under the counter, about 10 GPD

A:

The CTA membranes are chlorine tolerant whereas TFC membranes are not. The two systems should be very similar for your use.

Q:

What is the difference with Tap Water Membranes and Brackish water Membranes?

A:

There is no difference in the membrane material. Brackish water membranes have an outer shell of fiberglass whereas Tap water have a tape wrap. The construction allows Brackish water membranes to be operated at higher pressures required to treat brackish water.

Q:

Are Nano Filtration membranes suitable for removal of Fluoride?

A:

No, you will need an RO membrane.

Q:

Is it possible to use a reverse osmosis membrane to perform desalination of seawater at a pump pressure of 30-40 psi?

A:

No. The natural osmotic pressure of typical seawater is about 350 psi, therefore, to get any water to pass through the membrane the applied pressure would need to be more than the seawater psi.

Q:

Are Lead and Arsenic Removed by Thin Film Reverse Osmosis Membranes?
What are the rejection rates?

A:

There is not a list of rejection rates for these heavy metals, but we can give you some general guidelines. However, we recommend that you run the experiments under your unique set of conditions and ions/counterions.

Rejection of lead by thin film RO membranes has been reported to be quite high, >99%.

The rejection of arsenic depends on its oxidation state. The +3 acid, arsenious, is not rejected particularly well in neutral solutions, 70 to 90%, but is well rejected as the pH approaches or exceeds the pKa of 9.2. The +5 arsenic acid is well rejected in neutral solution.

Q:

How efficient is reverse osmosis system in screening out volatile chemical? such as MTBE, MTM, etc?

A:

Reverse Osmosis does not effectively remove these chemicals. In fact, such chemicals can damage membrane elements.

Q:

What effect does hydrogen sulfite and/or manganese have on RO membranes?
If any, what levels would the membranes tolerate?

A:

Hydrogen Sulfide would have no effect on the membranes, and is not removed by the membranes.
Manganese will foul the membranes and can cause fouling at levels in excess of 0.2 ppm in water.

Q:

Will Microfiltration remove Fluoride?

A:

No, Micro filtration will NOT remove Fluoride. However, reverse osmosis has been used to reduce Fluoride content by 90-98%.

Q:

Can I remove nitrates from our well water when using an RO unit?

A:

Nitrate removal when using reverse osmosis membranes is about 80%. So if you currently have 40 ppm of nitrate, then your levels after treatment should be around 8 ppm.

Q:

We are facing a problem with scaling due to hard water, what would you suggest to solve the problem?

A:

You may consider using a water softener.

Q:

At what concentration of chlorine will the Thin Film Membrane Fail?

A:

Maximum chlorine concentration should not exceed 0.1 ppm for a maximum of 1000 hours.

Q:

What values need to be considered when designing an RO membrane?

A:

You need to consider the TDS for design purpose. The salinity [conductivity based] is a quick but indirect and approximate method of estimating the TDS. Conductivity works on the conductance of ions from the dissolved solids. The

conductivity of an ion varies with its charge etc. So the same amount of TDS can give different conductivities depending on the types of dissolved solids. The conversion of conductivity to TDS is done using a make-up "standard" TDS solution that may be widely different in the water you are testing.