

Reverse Osmosis Water & Basecrete

GLOSSARY

- 1 Reverse Osmosis (RO)
- 2 De-ionized Water
- 3 Soft Water
- 4 Distilled Water

The use of Reverse Osmosis (RO) filtering systems is rapidly growing in the Caribbean due to the high expense of fresh water. More and more people are installing Reverse Osmosis systems to clean and purify rainwater which is then stored in large underground cisterns for later use.

The chemical nature of RO water (or any “soft” water) is such that it presents particular challenges when it comes to storing it and as such care must be taken to choose the correct material with which to line your RO water containment/holding structure.

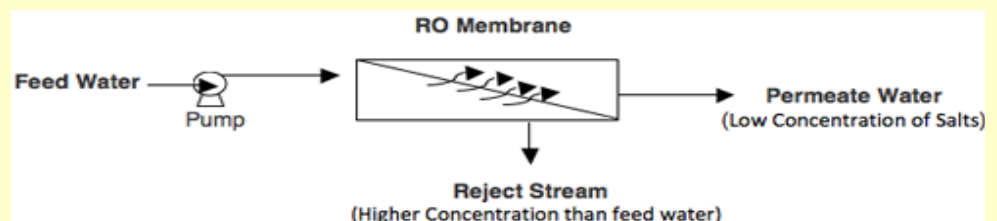
The purpose of this bulleting is to explain the effects of RO water on concrete structures and how Basecrete can be used to protect these structures from the damaging effects of RO water

Effect of RO (soft) water on concrete

Understanding Reverse Osmosis

Reverse osmosis, commonly referred to as RO, is a process where you demineralize or deionize water by pushing it under pressure through a semi permeable reverse osmosis membrane.

Reverse Osmosis is the process of Osmosis in reverse. Whereas Osmosis occurs naturally without energy required, to reverse the process of osmosis you need to apply energy. A reverse osmosis membrane is a semi-permeable membrane that allows the passage of water molecules but not the majority of dissolved salts, organics, bacteria and contaminants. However, you need to 'push' the water through the reverse osmosis membrane by applying pressure that is greater than the naturally occurring osmotic pressure in order to desalinate (demineralize or deionize) water in the process, allowing pure water through while holding back a majority of contaminants.



Effect of RO (soft) water on concrete

The action of removing practically all of the dissolved solids from the water has a direct effect on the specific gravity of the water reducing it down to practically 1. The resultant water is also known as soft water.

Soft water or RO water is highly penetrative into concrete structures migrating into the capillaries of the concrete on a molecular level. Once inside the concrete the RO water will begin to effect the individual cement molecules holding the concrete together. The result is a loss of cohesion inside the concrete breaking down its strength and resulting in accelerated corrosion of the concrete. This action affects most cement based waterproofing materials as well.

Note: In addition to dissolving concrete RO water can also affect many metals and steels. Care should be taken in choosing the material with which you line the interior of your RO water storage tank.

“RO water is highly penetrative into concrete structures.”

Basecrete and RO Water

Basecrete, which is a polymer cement, is an ideal solution to the problems outlined above when it comes to storage vessels for RO water. The reason for this is that the polymers inside Basecrete are totally resistant to the penetrative effects of soft water. The individual polymers surround and encapsulate the cement on a molecular level thus protecting them from the negative effects of the RO water.

Lining the inside of a cistern, or other storage tank, used to hold RO water is a cost effective solution to the problem of storing RO water. Basecrete is totally resistant to the effects of RO water.

Advantages to Using Basecrete inside Cisterns;

- Basecrete will adhere to most surfaces so even a storage tank made of steel can be waterproofed with Basecrete.
- Basecrete is Non-Toxic and can be applied in enclosed spaces without the need for special ventilation and breathing apparatus.
- Basecrete is flexible enough to absorb a high degree of movement without compromising its waterproofing integrity
- Basecrete is easy to apply with a roller/paintbrush, trowel or spraygun.

“Basecrete is totally resistant to the effects of RO water.”

For any questions regarding the use of Basecrete and RO water holding / storage tanks please contact our customer support at 1 941 312 5142 or by email info@basecreteusa.com.