

S1.1.4 Silica Reduction with Tubular Uf Membranes: How Low Can You Go?

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Porex Filtration

As one of most abundant component is the earth's crusts, silica is often found as a common component in hard water. The presence of silica can be detrimental to water treatment and processing equipment, especially to reverse osmosis membranes. When its solubility limit is exceeded, silica's propensity to scale raises issues that is often difficult or impossible to treat. These glassy deposits formed on the surface of membranes cause irreversible fouling that ruin the membrane flux and render RO membranes obsolete. While it is possible to reduce silica with RO membranes, these approaches can introduce other complications downstream.

With a combination of pretreatment chemistry and tubular UF membrane filtration, silica can be reduced to low or even trace levels. This technique can reduce silica and produce liquids optimal for reverse osmosis or other processes downstream. Common treatments such as lime softening and magnesium flocculation can precipitate silicate solids out of solution. Tubular UF membranes, which are designed to withstand high solids filtration, can subsequently extract these solids and eliminate silica complications for RO membranes.