

WHY PAY MORE AND FILTER LESS?

Case Study: Filtration Performance and Particle Analysis, Next-Sand vs. MultiMedia

Test Conditions

Water Source: Ground water pumped through a grit screen was collected in a 20,000-gallon storage tank. The water was pumped from the storage tank into a header pipe to supply two, parallel plumbed FRP filter vessels.

Equipment Description

Multimedia System. 48" dia. FRP tank. 36" bed depth comprised of #16 Garnet, #50 Garnet, 20x40 mesh sand and anthracite.
 Next-Sand System. 48" dia. FRP tank, 1/4x1/8 gravel to cover hub and laterals, 36" bed depth of 14x40 mesh Next-Sand.

Test Description

The filtered water was intended as Reverse Osmosis feedwater for a bottled water plant. The tests performed were TSS (Total Suspended Solids) Turbidity and SDI (Silt Density Index.) The tests were performed over a 5-month period by the plant operators with the assistance of a consulting Chemical Engineer.

What is SDI?
 SDI is Silt Density Index, a specialized test used to predict the fouling potential of feedwater for Reverse Osmosis systems. Low SDI values allow RO's to operate at higher efficiencies.

Test Results

Table I shows a comparison of the filtration performance of each system.

Table I. Filtration Performance - Colloidal Removal (TSS and SDI₁₅)

	Feed	MultiMedia	Next-Sand
TSS	31 mg/L	23 mg/L	< 5 mg/L
SDI₁₅	.40	.38	.18

Conclusion

The Next-Sand media out-performed multi-media in every respect. As an added benefit, Next-Sand operated at 1/2 the backwash frequency resulting in a water savings. The next filtrate with substantially lower TSS and SDI values provided optimum quality feed water for the Reverse Osmosis system.