

## Protecting Your RO Investment

Considering the significant cost factors for today's RO filtration systems, protecting a typical system becomes an economic necessity. Virtually all RO manufacturers specify a feed water stream with < 1.0 NTU and a Silt Density Index (SDI) of < 3.0. For the purpose of presenting a fair comparison of commercially available prefilters, Argonide tested their NanoCeram<sup>®</sup> filter cartridge against the offerings of two market leaders which are often used as prefilters for RO systems. The results are listed in Table 1 below for purposes of comparison:

**Table 1. Turbidity Reduction & Silt Density Index (SDI<sub>30</sub>) for filtered A2 Fine dust suspension and/or Municipal tap water through cartridges**

Manufacturer / Distributor	Type	Flow Rate (GPM)	Type of water	Turbidity, NTU		SDI <sub>30</sub> <sup>a</sup>
				in	out	
Argonide (NanoCeram <sup>®</sup> )	P2.5-10 2.5" x 10"	4	A2 dust <sup>b</sup> in RO water	252.00	<0.01	0.2 ± 0.3 <sup>c</sup>
			Municipal tap water	0.87	<0.01	0.5 ± 0.1 <sup>d</sup>
Manufacturer "A"	1μ Absolute 2.5" x 10"	4	A2 dust <sup>b</sup> in RO water	239.00	60.00	ND <sup>e</sup>
			Municipal tap water	0.54	0.10	4.4 ± 0.2 <sup>f</sup>
	0.35μ Standard 2.5" x 10"	4	A2 dust <sup>b</sup> in RO water	239.00	55.00	ND <sup>e</sup>
			Municipal tap water	0.57	0.14	4.6 ± 0.2 <sup>f</sup>
Manufacturer "B"	1μ Standard 2.5" x 20"	4	Municipal tap water	1.3 ± 0.1 <sup>g</sup>	0.4 ± 0.1 <sup>g</sup>	N/A
	1μ Absolute 2.5" x 10"	4	A2 dust <sup>b</sup> in RO water	243.00	23.00	ND <sup>e</sup>
			Municipal tap water	1.3 ± 0.3 <sup>g</sup>	<0.01 <sup>h</sup>	5.5 ± 0.2 <sup>f</sup>
5μ Standard 2.5" x 20"	4	Municipal tap water	1.5 ± 0.7 <sup>g</sup>	1.1 ± 0.4 <sup>g</sup>	ND <sup>e</sup>	

**Notes:**

- a) Silt Density Index (SDI<sub>30</sub>);
- b) ISO 121030-1, A2 Fine Test Dust available from PTI technology Inc.;
- c) Average of six measurements;
- d) Average of four measurements;
- e) Not done since turbidity of filtered water is unacceptable high (expected to be less than 1 NTU);
- f) Average of three measurements;
- g) Average over 3 hrs test;
- h) During first 30 minutes of run;
- i) After 30 minutes of continuous water run.

NanoCeram<sup>®</sup> filter cartridge exhibits a significant advantage in removing submicron particulate when compared to other commercially available filter cartridges typically used as prefilters to RO systems. Virtually all RO membrane manufacturers suggest turbidity no greater than 1.0 NTU in the feed waters for their systems to maintain system integrity and an economical return on investment. Even under extreme loading, NanoCeram<sup>®</sup> yields NTU values BDL providing long-lasting protection of RO and even UP membranes susceptible to premature fouling.

**SDI**

**RESULTS**

**CONCLUSION**