



DOWEX MONOSPHERE 550A UPW (OH)

A Uniform Particle Size Strong Base Anion Resin for Single or Mixed Bed Demineralization for Ultra Pure Water Production

Product	Type	Matrix	Functional group
DOWEX* MONOSPHERE* 550A UPW (OH)	Strong base anion	Styrene-DVB, gel	Quaternary ammonium

Guaranteed Sales Specifications		OH ⁻ form
Total exchange capacity, min.	eq/l	1.0
	kgr/ft ³ as CaCO ₃	21.9
Water content	%	55 - 65
Bead size distribution [†]	Mean particle size	590 ± 50
	Uniformity coefficient, max.	1.1
Whole uncracked beads, min.	%	95
Crush strength	Average, min.	350
	>200 g/bead, min.	95

Typical Physical and Chemical Properties		OH ⁻ form
Particle density, approx.	g/ml	1.08
Shipping weight, approx.	g/l	640
	lbs/ft ³	40

Recommended Operating Conditions	
Maximum operating temperature:	
Single bed (OH form)	60°C (140°F)
Mixed bed (OH form)	60°C (140°F)
Resin bed depth, min.:	
Single bed	800 mm (2.6 ft)
Mixed bed	450 mm (1.5 ft)
Flow rates:	
Service/fast rinse	10-60 m/h (4-24 gpm/ft ²)
Backwash	see figure 1
Regeneration/Displacement	4-10 m/h (1.6-4 gpm/ft ²)
Total rinse requirement	2-5 bed volumes
Regenerant:	
Type	4-8% NaOH
Temperature	Ambient or up to 50°C (122°F) for silica removal

UPW Specific Properties	
Rinse characteristics:	
UPW grade resins are rinsed with +17.5 Megaohm.cm water to meet stringent ionic and organic residuals:	
• Ionic conductivity rinse down, max. as packaged	1 µS/cm
• TOC rinse down to 4 ppb (+) (see figure 3)	45 bed volumes

(+) delta TOC ppb measured in/out

[†]For additional particle size information, please refer to the Particle Size Distribution Cross Reference Chart (Form No. 177-01775/CH 171-476-E).

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DOWEX Ion Exchange Resins

For more information about DOWEX resins, call Dow Liquid Separations business:
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 Australia(61) 2-9776-3226
<http://www.dow.com/liquidseps>

Typical properties and applications:

DOWEX* MONOSPHERE* 550A UPW (OH) type I strong base anion exchange resin is recommended for the roughing, intermediate and polishing ion exchange

loops either in a two bed system followed by a mixed bed or in a mixed bed following reverse osmosis (RO). Low TOC levels in the UPW grade are achieved by deliberate

functionalization and rinsing as shown in figure 3. UPW grade is characterized by its light color, superior crush strength, and high (greater than 95%) conversion of exchange sites to the hydroxide (OH) form.

Figure 1. Backwash Expansion Data

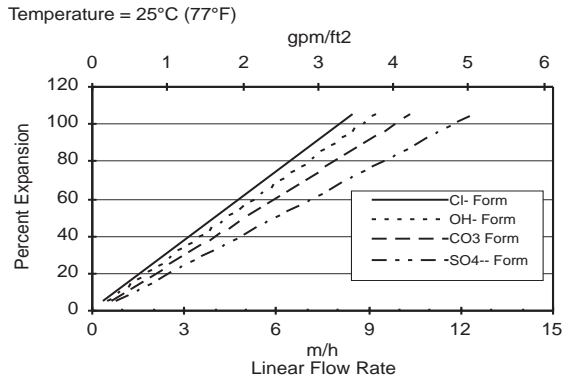
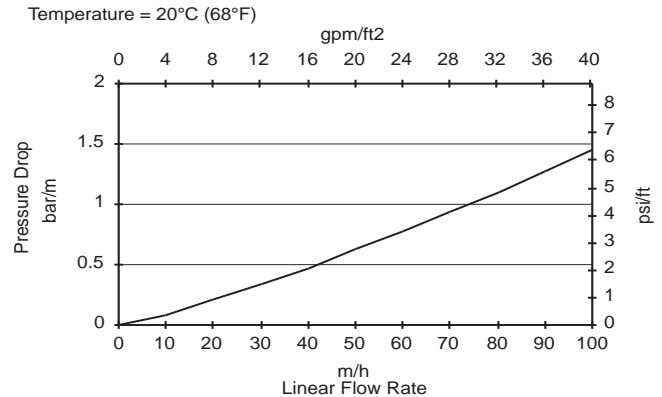


Figure 2. Pressure Drop Data



For other temperatures use:

$$F_T = F_{77°F} [1 + 0.008 (T_F - 77)], \text{ where } F \equiv \text{gpm/ft}^2$$

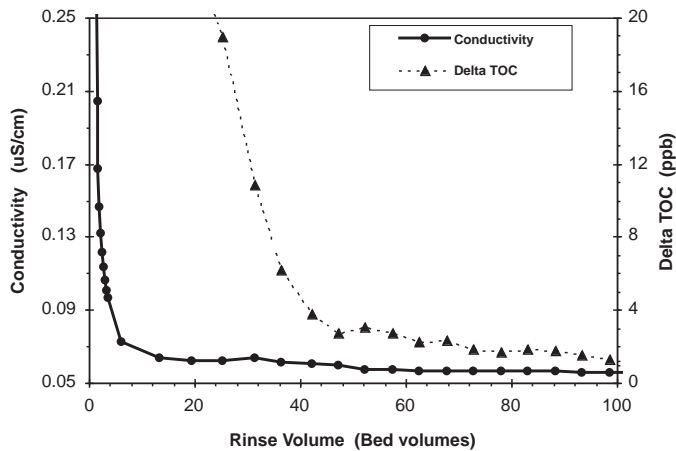
$$F_T = F_{25°C} [1 + 0.008 (1.8T_C - 45)], \text{ where } F \equiv \text{m/h}$$

For other temperatures use:

$$P_T = P_{20°C} / (0.026 T_C + 0.48), \text{ where } P \equiv \text{bar/m}$$

$$P_T = P_{68°F} / (0.014 T_F + 0.05), \text{ where } P \equiv \text{psi/ft}$$

Figure 3. Conductivity and TOC Rinsedown Curves



Warning: Oxidizing agents such as nitric acid attack organic ion exchange resins under certain conditions. This could lead to anything from slight resin degradation to a violent exothermic reaction (explosion). Before using strong oxidizing agents, consult sources knowledgeable in handling such materials.

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