

**DOWEX MONOSPHERE™ 550A Ion Exchange Resin**

For the Power Industry

**Description**

DOWEX MONOSPHERE™ 550A is an advanced, uniform particle size, gel, strong base anion exchange resin recommended for use in industrial demineralization applications. It has high total exchange capacity, exceptional bead integrity and a distinguishable light color and is ideally suited to the high flow rate demands commonly encountered in power plant condensate polishing systems. The bead size uniformity of this anion resin and its smaller average particle size results in rapid exchange kinetics and helps provide excellent separability when used with DOWEX MONOSPHERE 650C (H) strong acid cation exchange resin.

**Typical Physical and Chemical Properties**

Matrix	Styrene - DiVinylBenzene gel
Functional Groups	Quaternary amine
Physical Form	White to yellow Uniform translucent spherical beads
Ionic Form as Shipped	Cl <sup>-</sup> form
Total Exchange Capacity <sup>a</sup>	≥ 1.4 eq/L (Cl <sup>-</sup> form)
Water Retention Capacity <sup>a</sup>	42 – 48% (Cl <sup>-</sup> form)
Shipping Weight <sup>d</sup>	680 g/L      43 lbs/ft <sup>3</sup>
Bead size distribution <sup>c</sup>	
Particle diameter <sup>a</sup>	550 ± 50 µm
Uniformity Coefficient <sup>a</sup>	≤ 1.1
Fines content <sup>a</sup>	<300µm : 0.5 max
Coarse beads <sup>a</sup>	> 850µm : 5.0% max
Whole uncracked beads <sup>a</sup>	≥ 95%
Friability	
Average <sup>a</sup>	≥ 350 g/bead
> 200 g/bead <sup>a</sup>	≥ 95%
Maximum Reversible Swelling <sup>b</sup>	Cl <sup>-</sup> → OH <sup>-</sup> : 25%

<sup>a</sup> Contractual value<sup>b</sup> Typical value<sup>c</sup> For additional particle size information, please refer to Particle Size Distribution Cross Reference Chart (Form No. 177-01775).<sup>d</sup> As per the backwashed and settled density of the resin, determined by ASTM D-2187

Note: Test methods are available upon request.

**Suggested Operating Conditions**  
(Water Treatment)

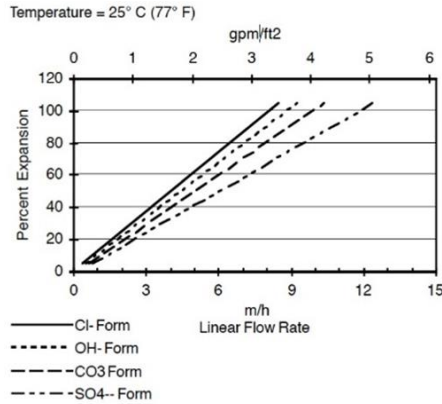
	OH form	Cl form
Maximum Operating Temperature	70°C (140°F)	100°C (212°F)
pH range	0 – 14	
Bed depth	≥ 450 mm (1.5ft)	
Flow rates		
Service/fast rinse	5 – 60 m/h (2 – 24 gpm/ft <sup>2</sup> )	
Service/condensate polishing	40 – 150 m/h (16 – 60 gpm/ft <sup>2</sup> )	
Backwash	See figure 1	

\* 1 BV (Bed Volume) = 1 m<sup>3</sup> solution per m<sup>3</sup> resin

**Hydraulic Characteristics**  
(Water Treatment)

Figure 1 shows the bed expansion of DOWEX MONOSPHERE™ 550A resin as a function of backwash flow rate and water temperature. Figure 2 shows the pressure drop data for DOWEX MONOSPHERE 550A as a function of service flow rate and water temperature. Pressure drop data are valid at the start of the service run with clear water and a correctly classified bed.

**Figure 1: Backwash Expansion**

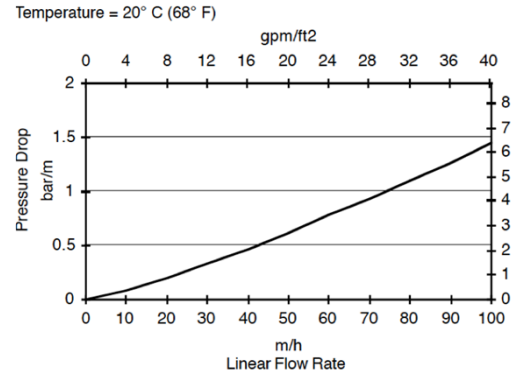


For other temperatures use:

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

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

**Figure 2: Pressure Drop**



For other temperatures use:

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

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

**Packaging**

25 liter bags to 200 liter drums

**Product Stewardship**

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products—from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

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Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

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**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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