



DOWEX™ MONOSPHERE™ C-400 Uniform Particle Size Strong Acid Cation Exchange Resin

For Water Softening Applications with High Salt Efficiency

Description

DOWEX™ MONOSPHERE™ C-400 Resin is a uniform particle size strong acid cation resin designed for use in water softening units up to a bed depth of 700 mm (2.3 ft). The fast kinetics of the small beads result in an exceptional operating capacity, which in turn results in high regeneration efficiency.

DOWEX MONOSPHERE C-400 Resin has excellent mechanical strength and very good stability to oxidation.

Typical Physical and Chemical Properties

Physical form		Amber translucent spherical beads
Matrix		Styrene-DVB, gel
Functional group		Sulfonic acid
Ionic form as shipped		Na ⁺ form
Total volume capacity, min.	eq/L kgr/ft ³ as CaCO ₃	2.2 48.2
Moisture retention capacity	%	38–45
Particle size		
Harmonic mean diameter	μm	400 ± 50
Uniformity coefficient, max.		1.1
< 200 μm, max.	%	0.5
Whole uncracked beads, min	%	95
Particle density	g/mL	1.30
Total swelling	(Ca ⁺⁺ → Na ⁺) %	4
Shipping density **	g/L	830
	lbs/ft ³	51

For additional particle size information, please refer to Particle Size Distribution Cross Reference Chart (Form No. 177-01775).

**As per the backwashed and settled density of the resin, determined by ASTM D-2187

Suggested Operating Conditions

Maximum operating temperature:	130°C / 265°F
pH range	0–14
Bed depth, min.	700 mm (2.3 ft)
Flow rates:	
Service/fast rinse	5–100 m/h (2–40 gpm/ft ²)
Backwash	5–10 m/h (2–4 gpm/ft ²)
Regeneration/displacement rinse	5–20 m/h (2–8 gpm/ft ²)
Total rinse requirement	2–5 BV*
Regenerant:	
Type	5–25% NaCl

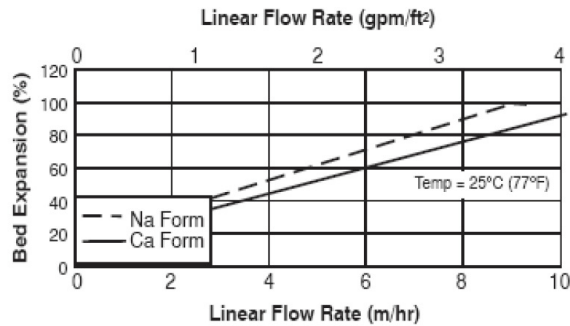
*1 BV (Bed Volume) = 1 m³ solution per m³ resin or 7.5 gals per ft³ resin

Hydraulic Characteristics

Figure 1 shows the bed expansion of DOWEX™ MONOSPHERE™ C-400 Resin as a function of backwash flow rate and water temperature. Figure 2 shows the pressure drop data for DOWEX MONOSPHERE C-400 Resin 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 Data

Temperature = 20° C (68° F)



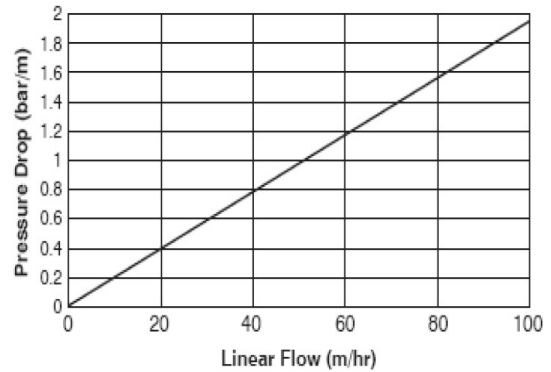
For other temperatures use:

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

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

Figure 2. Pressure Drop Data

Temperature = 20° C (68° F)



For other temperatures use:

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

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

Packaging

5 cubic foot drums or other packaging upon request

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.

Customer Notice

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.

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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