



## DOWEX MONOSPHERE 650C (H)

A Uniform Particle Size Strong Acid Cation Exchange Resin for Mixed Bed Demineralization and Condensate Polishing Applications

Product	Type	Matrix	Functional group
DOWEX* MONOSPHERE* 650C (H)	Strong acid cation	Styrene-DVB gel	Sulfonic acid

Guaranteed Sales Specifications			H <sup>+</sup> form	
Total exchange capacity, min.		eq/l kgr/ft <sup>3</sup> as CaCO <sub>3</sub>	2.0 43.7	
Water content		%	46 – 51	
Bead size distribution†				
Mean particle size		μm	650 ± 50	
Uniformity coefficient, max.			1.1	
>850μ, max.		%	5	
<300μ, max.		%	0.5	
Whole uncracked beads, min.		%	95	
Crush strength				
Average, min.		g/bead	500	
> 200 g/bead, min.		%	95	
Ionic conversion, min.		%	99.7	
Trace metals, ppm dry resin, max.				
Na	Fe	Cu	Al	Heavy metals (as Pb)
100	50	50	50	20

### Typical Physical and Chemical Properties

Total swelling (Na <sup>+</sup> → H <sup>+</sup> )	%	7
Particle density	g/ml	1.22
Shipping weight	g/l lbs/ft <sup>3</sup>	785 49

### Recommended Operating Conditions

- Maximum operating temperature 130°C (265°F)
- pH range 0-14
- Bed depth, min. 450 mm (1.5 ft)
- 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
  - Co-current regeneration/displacement rinse 1-10 m/h (0.4-4 gpm /ft<sup>2</sup>)
- Total rinse requirement 3 – 6 Bed volumes
- Regenerant 1-10% H<sub>2</sub>SO<sub>4</sub> or 4-8% HCl

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

## Typical properties and applications

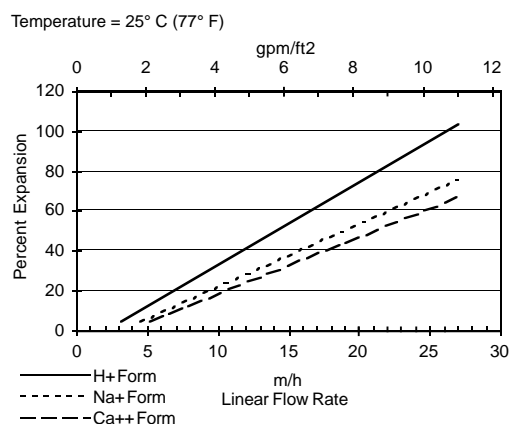
DOWEX MONOSPHERE 650C (H) cation exchange resin is a premium quality gel resin with uniform particle size designed specifically for use in mixed beds. It is ideally suited to the high flow rate demands of condensate polishing applications. The bead size uniformity is tailored to complement the smaller, less dense DOWEX MONOSPHERE 550A (OH) anion resin. Together, these resins offer near perfect separation in mixed beds.

The color distinction between the two resins allows easy visual confirmation of separation following backwash. DOWEX MONOSPHERE 650C resin has outstanding mechanical strength and very good stability to oxidation.

## Packaging

25 liter bags or 5 cubic feet fiber drums

### Figure 1. Backwash Expansion Data

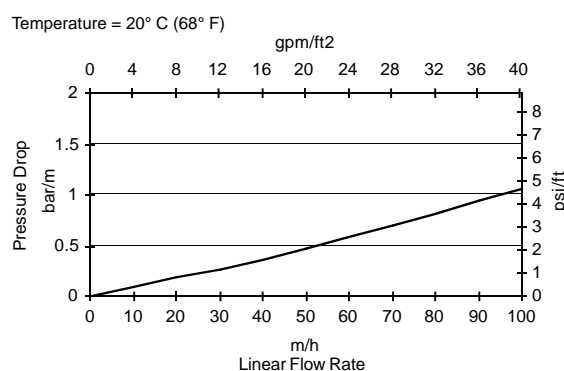


For other temperatures use:

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

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

### Figure 2. Pressure Drop Data



For other temperatures use:

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

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

## DOWEX Ion Exchange Resins

For more information about DOWEX resins, call the Dow Liquid Separations business:

North America: 1-800-447-4369  
 Latin America: (+55) 11-5188-9277  
 Europe: (+32) 3-450-2240  
 Japan: (+81) 3-5460-2100  
 Australia: (+61) 3-9226-3545  
<http://www.dowex.com>

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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