

## 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	2.0	
		kgr/ft <sup>3</sup> as CaCO <sub>3</sub>	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	785
	lbs/ft <sup>3</sup>	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

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**Typical properties and applications**

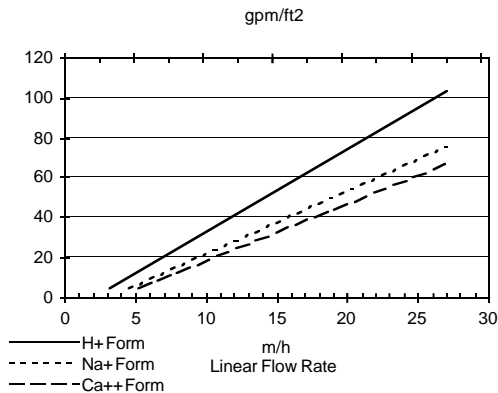
DOWEX MONOSPHERE 650C (H) cation exchange resin is a premium quality gel resin with uniform particle size designed specifically for use in mixed beds. It is ideally suited to the high flow rate demands of condensate polishing applications. The bead size uniformity is tailored to complement the smaller, 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**

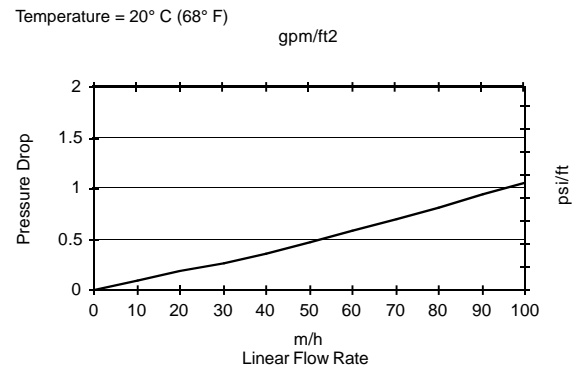


For other temperatures use:

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

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

**Figure 2. Pressure Drop Data**



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