

**DOWEX™ MONOSPHERE™ 650HXC NG (H)**

A High Cross-linked Uniform Particle Size Strong Acid Cation Exchange Resin
for Condensate Polishing Applications

Product	Type	Matrix	Functional group
DOWEX™ MONOSPHERE™ 650HXC NG (H)	Strong acid cation	Styrene-DVB, gel	Sulfonic acid

Guaranteed Sales Specifications		H ⁺ form
Total exchange capacity, min.	eq/L	2.2
Water retention capacity	%	39-44
Bead size distribution		
Volume median diameter	μm	650±50
Uniformity coefficient, max.		1.1
> 850 μm, max.	%	5
< 300 μm, max.	%	0.5
Whole uncracked beads, min.	%	95
Friability (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
50	50	50
		Al
		50
		Ni
		10
		Zn
		10
		Heavy Metals (as Pb)
		20

Typical Physical and Chemical Properties		H ⁺ form
Total swelling (Na ⁺ ⇒ H ⁺)	%	6
Particle density	g/mL	1.26
Shipping weight**	g/L	816
	lbs/ft ³	51

**Recommended
Operating
Conditions**

- Maximum operating temperature 130°C (265°F)
- pH range 0-14
- Bed depth in mixed bed, min. 450 mm (1.5 ft)
- Flow rates: Service/condensate polishing Backwash Regeneration/displacement rinse 40-150 m/h (16-60 gpm/ft²)
See figure 2
- Total rinse requirement 1-10 m/h (0.4-4 gpm/ft²)
- Regenerant 3-6 Bed volumes
1-10% H₂SO₄ or 4-8% HCl

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

Typical properties and applications

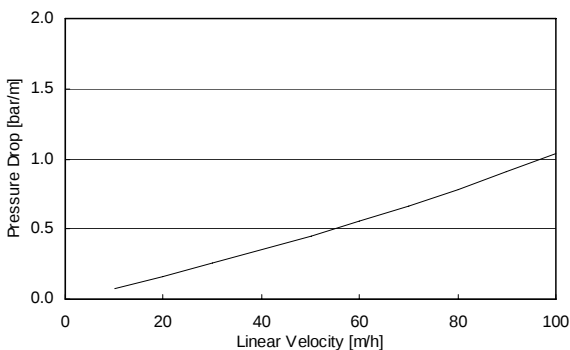
DOWEX™ MONOSPHERE™ 650HXC NG (H) strong acid cation exchange resin is a nuclear grade high capacity gel resin with uniform particle size designed especially for use in non-regenerable deep bed condensate polishers together with DOWEX MONOSPHERE 550A (OH) at boiling water reactor (BWR) power stations. The resin attributes an outstanding stability against oxidative conditions to its higher cross-linkage (14%-DVB) and prevents surface kinetic impairment of anion resins due to smaller amounts of high molecular weight TOC leachables.

Packaging

5 cubic feet fiber drums.

Figure 1. Pressure Drop vs. Flow Rate

For DOWEX MONOSPHERE 650HXC NG (H), 20°C (68°F)



For other temperatures use:

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

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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