

**DOWEX™ N406**

A Uniform Particle Size Strong Acid Cation Exchange Resin for Fermentation and Fine Chemical Applications

Product	Type	Matrix	Functional group
DOWEX™ N406	Strong acid cation	Styrene-DVB gel	Sulfonic acid

Guaranteed Sales Specifications			H ⁺
Total exchange capacity, min.	eq/L		2.0
	kgr/ft ³ as CaCO ₃		43.7
Water content	%		46-51
Bead size distribution:			
Mean particle size	μm		650 ± 50
Uniformity coefficient, max			1.1
> 850 μm, max.	%		5
< 300 μm, max.	%		0.5
Whole uncracked beads, min.	%		95
Crush strength:			
Average, min.	g/bead		500
> 200 g/bead, min.	%		95

Typical Physical and Chemical Properties		
Particle density	g/mL	1.22
Shipping weight**	g/L	784
	lbs/ft ³	49
Total swelling (Na ⁺ → H ⁺)	%	7

**Recommended
Operating
Conditions**

- Maximum operating temperature 130°C (265°F)
- pH range 0-14
- Bed depth, min. 450 mm (1.5 ft)
- Total rinse requirement 3-6 Bed volumes
- Regenerant:
Type 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

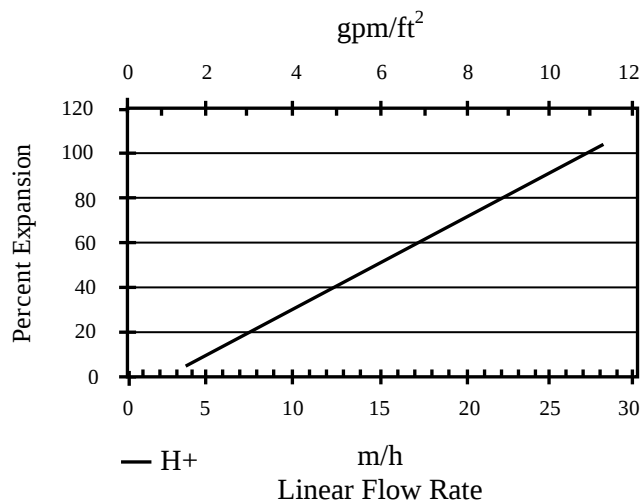
DOWEX™ N406, a strong acid cation resin, is a uniform particle size resin specially designed for use in fermentation and fine chemical applications such as L-lysine isolation and recovery. This resin is capable of meeting the 21CFR173.25 food contacting regulation after cross regeneration

Packaging

5 cubic foot drums or 1,000 liter super sacks

Figure 1. Backwash Expansion Data

Temperature = 25°C (77°F)



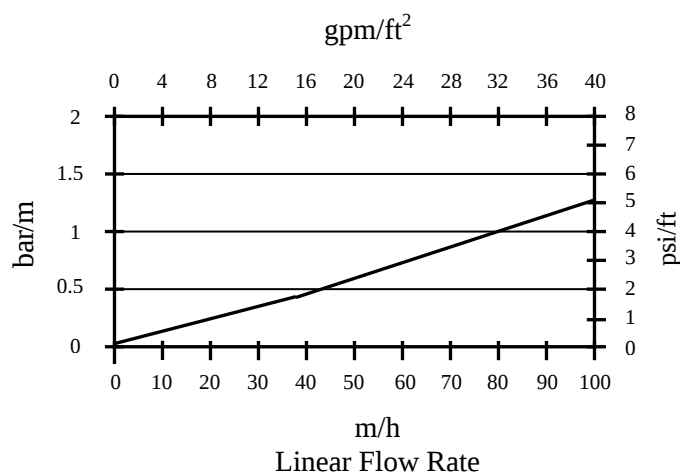
For other temperatures use:

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

$$F_T = F_{25^\circ\text{C}} [1 + 0.01008 (1.8T_{\text{°C}} - 45)], \text{ where } F = \text{m/h}$$

Figure 2. Pressure Drop Data

Temperature = 20°C (68°F)



For other temperatures use:

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

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

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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