

**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 <sup>+</sup>
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
> 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 <sup>3</sup>	49
Total swelling (Na <sup>+</sup> → H <sup>+</sup> )		%	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% H <sub>2</sub> SO <sub>4</sub> or 4-8% HCl

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

Typical Properties and Applications

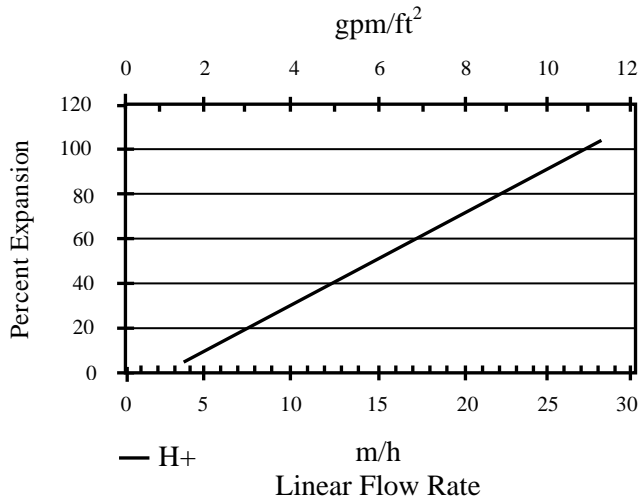
DOWEX™ N406, a strong acid cation resin, is a uniform particle size resin specially designed for use in fermentation and fine chemical applications such as L-lysine isolation and recovery. This resin is capable of meeting the 21CFR173.25 food contacting regulation after cross regeneration

Packaging

5 cubic foot drums or 1,000 liter super sacks

Figure 1. Backwash Expansion Data

Temperature = 25°C (77°F)



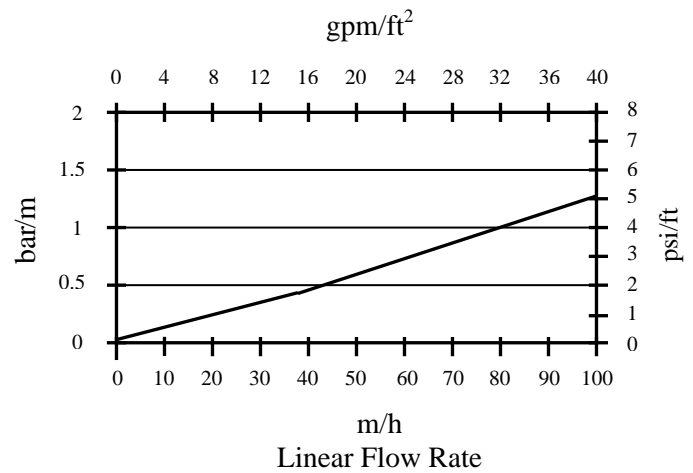
For other temperatures use:

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

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

Figure 2. Pressure Drop Data

Temperature = 20°C (68°F)



For other temperatures use:

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

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

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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