



Product Data Sheet

DOWEX™ FPC16UPS H Ion Exchange Resin

Uniform Particle Size, High Capacity Strong Acid Cation Exchange Resin

Description

DOWEX™ FPC16UPS H Strong Acid Cation Exchange Resin is a uniform particle size resin that offers outstanding performance in specialty food applications, such as the production of amino acids or demineralization in dairy processing. The small uniform beads exhibit faster kinetics than conventionally sized resins. The improved kinetics can result in improved regeneration efficiency, higher operating capacity, reduced regenerant usage and less wastewater.

Applications

- Amino acid production
- Dairy demineralization

Typical Physical and Chemical Properties

Matrix	Styrene-divinylbenzene, gel
Type	Strong acid cation
Functional Groups	Sulfonic acid
Physical Form	Amber, translucent, spherical beads
Ionic Form as Shipped	H ⁺
Total Exchange Capacity ^a	≥ 1.8 eq/L
Water Retention Capacity ^a	50 – 56%
Particle Size	
Particle Diameter ^b	600 ± 50 µm
Uniformity Coefficient ^a	≤ 1.1
Whole Uncracked Beads	≥ 95%
Swelling	Na ⁺ → H ⁺ : 8%
Particle Density	1.20 g/mL
Bulk Density, as Shipped ^c	800 g/L (50 lb/ft ³)

^a Contractual value.

^b For additional particle size information, please refer to the [Particle Size Distribution Cross Reference Chart](#) (Form No. 177-01775).

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

Suggested Operating Conditions

Maximum Operating Temperature	93°C (200°F)
pH Range	0 – 14
Bed Depth, min.	1000 mm (3.3 ft)
Flowrates	
Service	2 – 8 BV*/h
Backwash	See Figure 1
Fast Rinse	2 – 8 BV/h
Contact Time	
Regeneration	30 – 45 minutes
Displacement Rinse	30 – 45 minutes
Total Rinse Requirement	2 – 5 BV
Regenerant	
Concentration	7%
Level	80 – 96 kg/m ³ (5 – 6 lb/ft ³)
Temperature, max.	93°C (200°F)

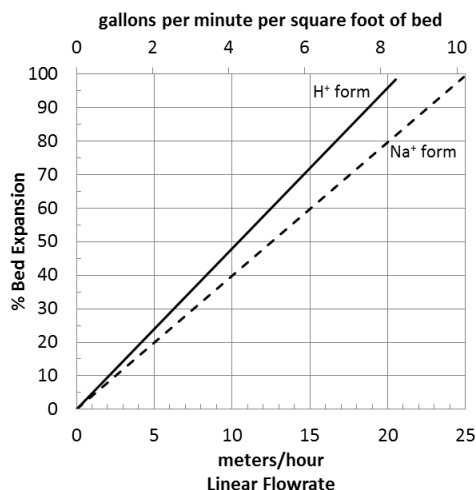
* 1 BV (Bed Volume) = 1 m³ solution per m³ resin or 7.5 gal solution per ft³ resin

Hydraulic Characteristics

Bed expansion of DOWEX™ FPC16UPS H Ion Exchange Resin as a function of backwash flowrate at 25°C (77°F) is shown in Figure 1. The flowrate necessary to achieve a desired bed expansion for other water temperatures can be calculated with the provided equations.

Figure 1: Backwash Expansion

Temperature = 25°C (77°F)



For other temperatures use:

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

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

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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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