



Product Data Sheet

AmberLite™ FPC16 UPS H Ion Exchange Resin

Uniform Particle Size, High Capacity, Gel, Strong Acid Cation Exchange Resin

Description

AmberLite™ FPC16 UPS H Ion Exchange Resin is a uniform particle size, gel 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 Properties

Physical Properties

Copolymer	Styrene-divinylbenzene
Matrix	Gel
Type	Strong acid cation
Functional Group	Sulfonic acid
Physical Form	Amber, translucent, spherical beads

Chemical Properties

Ionic Form as Shipped	H ⁺
Total Exchange Capacity	≥ 1.8 eq/L
Water Retention Capacity	50 – 56%

Particle Size[§]

Particle Diameter	600 ± 50 µm
Uniformity Coefficient	≤ 1.1

Stability

Whole Uncracked Beads	≥ 95%
Swelling	Na ⁺ → H ⁺ : 8%

Density

Particle Density	1.20 g/mL
Shipping Weight	800 g/L

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

Suggested Operating Conditions

Maximum Operating Temperature (H ⁺ form)	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 (if applicable)	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, 100% basis	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

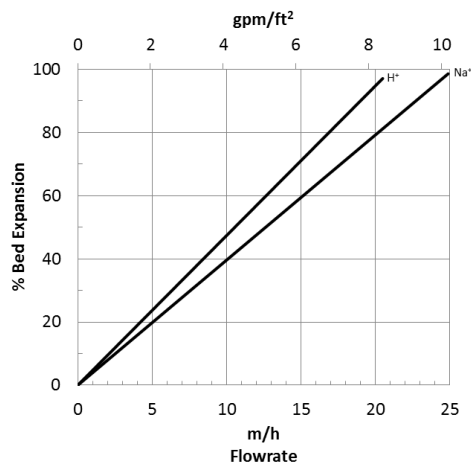
Hydraulic Characteristics

Bed expansion of AmberLite™ FPC16 UPS 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.

Pressure drop for AmberLite™ FPC16 UPS H (converted to the Na⁺ form) as a function of service flowrate at 20°C (68°F) is shown in Figure 2. These pressure drop expectations are valid at the start of the service run with clean water.

Figure 1: Backwash Expansion

Temperature = 25°C (77°F)



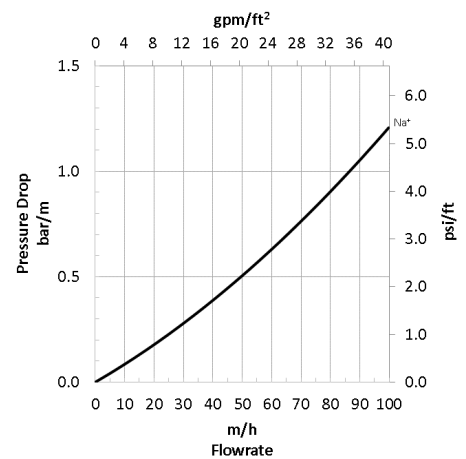
For other temperatures use:

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

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

Figure 2: Pressure Drop

Temperature = 20°C (68°F)



For other temperatures use:

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

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

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Please be aware of the following:

- **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.

Have a question? Contact us at:

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