Product Data Sheet

DuPont™ AmberLite™ FPC16UPS H Ion Exchange Resin

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

Description

DuPont™ AmberLite™ FPC16UPS 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	$Na^+ \rightarrow H^+$: 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. 45-D00954-en).

Form No. 45-D01477-en, Rev. 5
February 2023

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	HCl
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 m^3 solution per m^3 resin or 7.5 gal solution per ft^3 resin

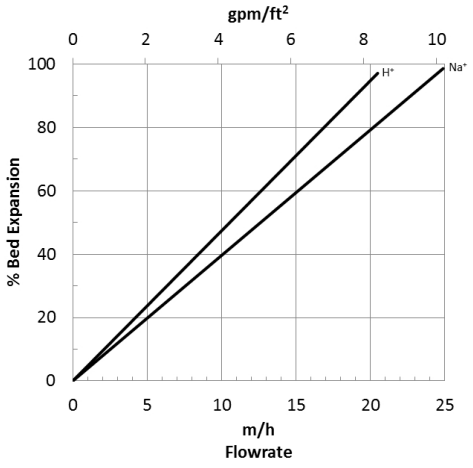
Hydraulic Characteristics

Bed expansion of DuPont™ AmberLite™ 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.

Pressure drop for AmberLite™ FPC16UPS 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)



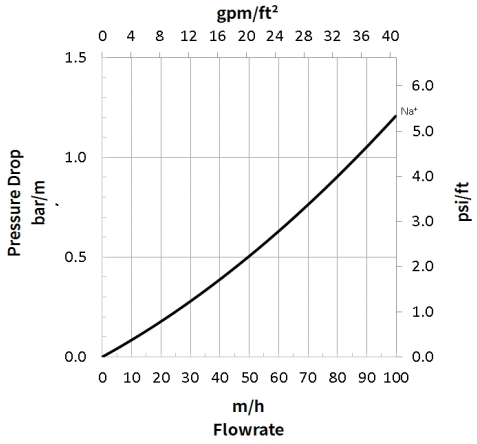
For other temperatures use:

$F_T = F_{25°C} [1 + 0.008 (1.8T_{°C} - 45)]$, where F ≡ m/h

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

Figure 2: Pressure Drop

Temperature = 20°C (68°F)



For other temperatures use:

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

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

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Product Stewardship

DuPont has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with DuPont products—from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

DuPont strongly encourages its customers to review both their manufacturing processes and their applications of DuPont products from the standpoint of human health and environmental quality to ensure that DuPont products are not used in ways for which they are not intended or tested. DuPont personnel are available to answer your questions and to provide reasonable technical support. DuPont product literature, including safety data sheets, should be consulted prior to use of DuPont products. Current safety data sheets are available from DuPont.

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:

www.dupont.com/water/contact-us

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Form No. 45-D01477-en, Rev. 5
February 2023