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).



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## 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

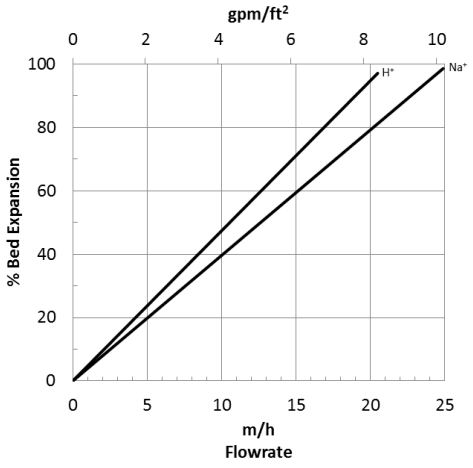
## Hydraulic Characteristics

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)



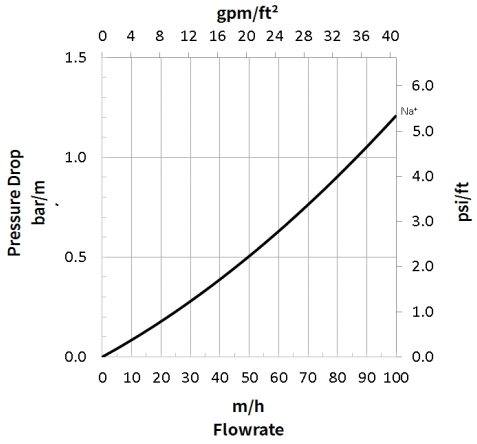

**For other temperatures use:**

$F_T = F_{25°C} [1 + 0.008 (1.8T_{°C} - 45)]$, 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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