



## Product Data Sheet

### **DuPont™ AmberLite™ FPA55 Ion Exchange Resin**

Food-grade, Gel, Acrylic, Weak Base Anion Exchange Resin

#### **Description**

DuPont™ AmberLite™ FPA55 Ion Exchange Resin is an acrylic, gel, weakly basic, anion exchange resin for use in the nutrition and bioprocessing industries.

Compared to the AmberLite™ FPA53 Ion Exchange Resin, AmberLite™ FPA55 has been designed to have a short rinse. This improved rinse profile gives some cost benefits in process operations and provides a choice between AmberLite™ FPA55 and the more classic AmberLite™ FPA53, depending on the particular needs.

The extremely flexible acrylic polymer matrix provides outstanding physical stability and greater resistance to organic fouling than conventional polystyrene-based resins, leading to longer life in the application.

#### **Nutrition Applications**

AmberLite™ FPA55 Ion Exchange Resin has been particularly useful in dairy applications where the combination of stability and an improved rinse profile has been noted. It can also be used for deashing and deacidification of food streams, including starch-based sweeteners, and for the treatment of organic acids.

The gel structure of AmberLite™ FPA55 gives it higher capacity and longer run lengths than macroporous resins. AmberLite™ FPA55 has higher basicity than other weakly basic ion exchange resins, making it an excellent choice for the removal of weak organic acids.

#### **Bioprocessing Applications**

AmberLite™ FPA55 Ion Exchange Resin is an excellent resin for removing organic color bodies in many bioprocessing applications such as natural product extraction and recovery of antibiotics from fermentation broth.

#### **Applications**

- Nutrition applications
  - Dairy processing
  - Sweetener deashing
  - Sweetener deacidification
  - Organic acid purification
- Bioprocessing applications
  - Decolorization

## Typical Properties

<b>Physical Properties</b>	
Copolymer	Crosslinked acrylic
Matrix	Gel
Type	Weak base anion
Functional Group	Tertiary amine
Physical Form	White, translucent, spherical beads
<b>Chemical Properties</b>	
Ionic Form as Shipped	Free base (FB)
Total Exchange Capacity	≥ 1.5 eq/L
Water Retention Capacity	56 – 64%
<b>Particle Size</b> §	
Particle Diameter	500 – 750 µm
< 300 µm	≤ 3.0%
> 1180 µm	≤ 5.0%
<b>Stability</b>	
Swelling	FB → HCl ≤ 30%
<b>Density</b>	
Shipping Weight	670 g/L

§ For additional particle size information, please refer to the [Particle Size Distribution Cross Reference Chart](#) (Form No. 45-D00954-en).

## Suggested Operating Conditions

Maximum Operating Temperature	50°C (122°F)
Bed Depth, min.	700 mm (2.3 ft)
<b>Flowrates</b>	
Service	4 – 8 BV*/h
Regeneration	See Figure 1.
NaCl	2 – 8 BV/h
Slow Rinse	Regeneration flowrate for 2 BV
Fast Rinse	10 BV/h for 4 – 8 BV
<b>Contact Time</b>	
Regeneration	≥ 30 minutes – 45 minutes
<b>Regenerant</b>	
Concentration	2 – 4%
Level, 100% basis	130% of ionic load

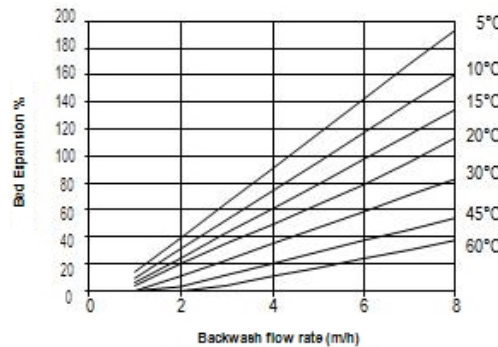
\* 1 BV (Bed Volume) = 1 m<sup>3</sup> solution per m<sup>3</sup> resin or 7.5 gal solution per ft<sup>3</sup> resin

## Hydraulic Characteristics

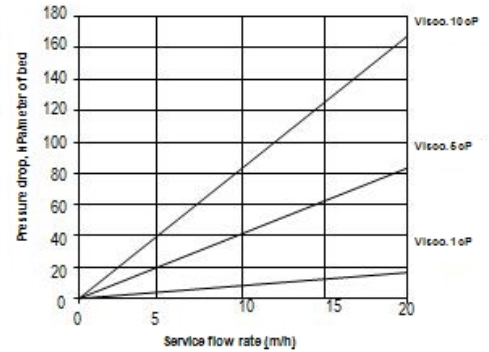
Estimated bed expansion of DuPont™ AmberLite™ FPA55 Ion Exchange Resin as a function of backwash flowrate and temperature is shown in Figure 1.

Estimated pressure drop for AmberLite™ FPA55 as a function of service flowrate and viscosity is shown in Figure 2. These pressure drop expectations are valid at the start of the service run with clean feed and a well-classified bed.

**Figure 1: Backwash Expansion**  
Temperature = 5 – 60°C (41 – 140°F)



**Figure 2: Pressure Drop**  
Viscosity = 1 – 10 cP



## 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.

## Regulatory Note

This product may be used in applications that need to comply with relevant regulations. In support of these applications, a Regulatory Information Package is available upon request. Please address your request to your sales team or the contact details provided in this Product Data Sheet.

**Have a question? Contact us at:**

[www.dupont.com/water/contact-us](http://www.dupont.com/water/contact-us)

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