



## Product Data Sheet

### AMBERLITE™ FPA55 Ion Exchange Resin

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

#### Description

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

---

### Physical Properties

|                  |                                     |
|------------------|-------------------------------------|
| Copolymer        | Crosslinked acrylic                 |
| Matrix           | Gel                                 |
| Type             | Weak base anion                     |
| Functional Group | Tertiary amine                      |
| Physical Form    | White, translucent, spherical beads |

---

### Chemical Properties

|                          |                |
|--------------------------|----------------|
| Ionic Form as Shipped    | Free base (FB) |
| Total Exchange Capacity  | ≥ 1.6 eq/L     |
| Water Retention Capacity | 56 – 64%       |

---

### Particle Size <sup>§</sup>

|                   |              |
|-------------------|--------------|
| Particle Diameter | 500 – 750 μm |
| < 300 μm          | ≤ 3.0%       |
| > 1180 μm         | ≤ 5.0%       |

---

### Stability

|          |                |
|----------|----------------|
| Swelling | FB → HCl ≤ 30% |
|----------|----------------|

---

### Density

|                 |         |
|-----------------|---------|
| Shipping Weight | 720 g/L |
|-----------------|---------|

---

<sup>§</sup> 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 | 50°C (122°F)                   |
| Bed Depth, min.               | 700 mm (2.3 ft)                |
| Flowrates                     |                                |
| Service                       | 4 – 8 BV*/h                    |
| Backwash                      | See Figure 1                   |
| Regeneration                  | 2 – 8 BV/h                     |
| Slow Rinse                    | Regeneration flowrate for 2 BV |
| Fast Rinse (if applicable)    | 10 BV/h for 4 – 8 BV           |
| Contact Time                  |                                |
| Regeneration                  | ≥ 30 – 45 minutes              |
| Regenerant                    |                                |
| Concentration                 | NaOH<br>2 – 4%                 |
| Level                         | 130% of ionic load             |

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

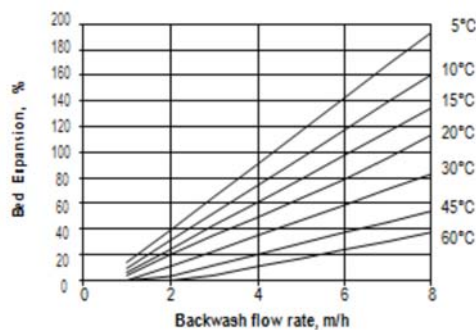
## Hydraulic Characteristics

Estimated bed expansion of 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.

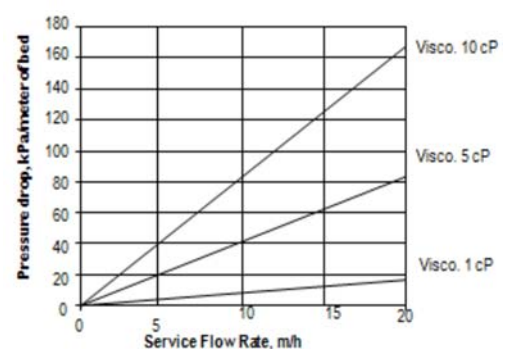
**Figure 1: Backwash Expansion**

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.

Have a question? Contact us at:

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

All information set forth herein is for informational purposes only. This information is general information and may differ from that based on actual conditions. Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other government enactments. The product shown in this literature may not be available for sale and/or available in all geographies where DuPont is represented. The claims made may not have been approved for use in all countries. Please note that physical properties may vary depending on certain conditions and while operating conditions stated in this document are intended to lengthen product lifespan and/or improve product performance, it will ultimately depend on actual circumstances and is in no event a guarantee of achieving any specific results. DuPont assumes no obligation or liability for the information in this document. References to "DuPont" or the "Company" mean the DuPont legal entity selling the products to Customer unless otherwise expressly noted. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED. No freedom from infringement of any patent or trademark owned by DuPont or others is to be inferred.

DuPont™, the DuPont Oval Logo, and all trademarks and service marks denoted with ™, ℠ or ® are owned by affiliates of DuPont de Nemours, Inc. unless otherwise noted. © 2019 DuPont.

