



Product Data Sheet

DuPont™ AmberLite™ FPA52 Ion Exchange Resins

Food Processing Grade, Macroporous, Weak Base Anion Resin

Description

DuPont™ AmberLite™ FPA52 Ion Exchange Resin is a macroporous, weak base anion resin. It has an outstanding mechanical and osmotic stability, making it suitable for the treatment of solutions with relatively high dissolved solids, such as demineralization of food solutions such as lysine, amino acids, gelatin, citrus juices, and others. Its macroporous structure facilitates the efficient uptake of strong acids (e.g. HCl and H₂SO₄) when following a strong acid cation exchanger. In addition to removing strong acids, this resin has excellent adsorption and desorption of organic matter.

Applications

- Lysine production
- Juice demineralization/deacidification
- Gelatin demineralization
- Amino acid recovery

Typical Properties

Physical Properties

| | |
|------------------|------------------------------------|
| Copolymer | Styrene-divinylbenzene |
| Matrix | Macroporous |
| Type | Weak base anion |
| Functional Group | Tertiary amine |
| Physical Form | Off-white, opaque, spherical beads |

Chemical Properties

| | |
|--------------------------|----------------|
| Ionic Form as Shipped | Free base (FB) |
| Total Exchange Capacity | ≥ 1.6 eq/L |
| Weak Base Capacity | ≥ 1.3 eq/L |
| Water Retention Capacity | 40 – 50% |

Particle Size[§]

| | |
|---|--------------|
| Particle Diameter, Harmonic Mean Diameter | 580 – 780 μm |
| Uniformity Coefficient | ≤ 1.8 |
| < 355 μm | ≤ 3.0% |

Stability

| | |
|----------|----------------|
| Swelling | FB → HCl ≤ 25% |
|----------|----------------|

Density

| | |
|------------------|-----------|
| Particle Density | 1.05 g/mL |
| Shipping Weight | 660 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 (FB-form) | 90°C (194°F) | | |
| Flowrates | | | |
| Service | 2 – 8 BV*/h | | |
| Backwash | See Figure 1 | | |
| Slow Rinse | Regeneration flowrate for 2 BV | | |
| Fast Rinse (if applicable) | Service flowrate for 4 – 8 BV | | |
| Contact Time | | | |
| Regeneration | ≥ 30 – 45 minutes | | |
| Regenerant | NaOH † | Na ₂ CO ₃ | NH ₃ |
| Concentration | 2 – 6% | 5 – 8% | 7% |
| Level ‡ | 40 – 80 kg/m ³ (2.5 – 5 lb/ft ³) | 60 – 130 kg/m ³ (3.8 – 8.1 lb/ft ³) | 40 – 80 kg/m ³ (2.5 – 5 lb/ft ³) |

* 1 BV (Bed Volume) = 1 m³ solution per m³ resin or 7.5 gal per ft³ resin

† NaOH is recommended.

‡ Regeneration level may be lower for counter-current regeneration systems.

Hydraulic Characteristics

Estimated bed expansion of DuPont™ AmberLite™ FPA52 Ion Exchange Resin as a function of backwash flowrate and temperature 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.

Estimated pressure drop for AmberLite™ FPA52 as a function of service flowrate and temperature is shown in Figure 2. These pressure drop expectations are valid at the start of the service run with clean feed.

Figure 1: Backwash Expansion

Temperature = 5 – 60°C (41 – 140°F)

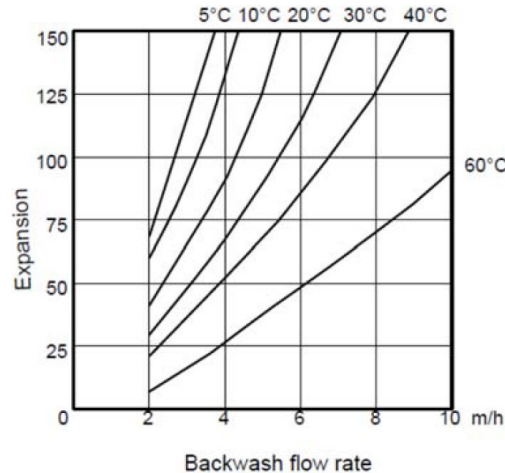
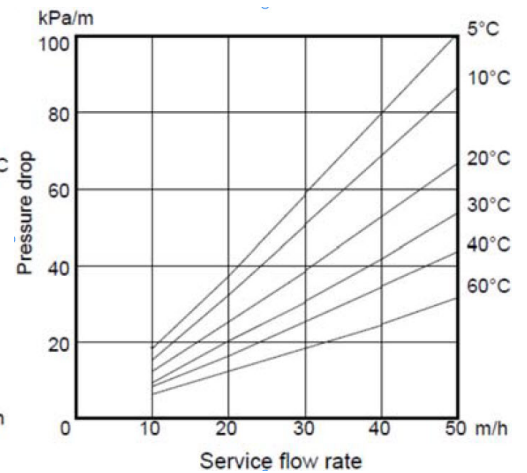


Figure 2: Pressure Drop

Viscosity = 2 – 14 cP



For other temperatures use:

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

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

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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.

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

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