



Product Data Sheet

AMBERLITE™ FPA90RF CI Ion Exchange Resin

Food-grade, Reduced Fines, Styrenic, Macroporous, Strong Base Anion Exchange Resin for Cane Sugar Decolorization

Description

AMBERLITE™ FPA90RF CI Ion Exchange Resin has been specially designed for the decolorization of liquid sugar syrups. Ion exchange based decolorization technology has been used more effectively and economically than carbon or bone char based technologies. Sugar refiners and soft drink bottlers around the world have installed AMBERLITE™ FPA90RF CI to successfully decolorize sucrose solutions.

AMBERLITE™ FPA90RF CI is a styrenic, macroporous, Type I strong base anion resin. It is an excellent choice for cane sugar decolorization, offering advantages such as:

- Maximum decolorization efficiency due to the macroporous structure
- Particle size distribution specifically selected to give optimal performance in packed bed and **up-flow** floating bed systems
- Exceptional physical stability, excellent resistance to osmotic shock, and very good organic fouling resistance

AMBERLITE™ FPA90RF CI reduced fines resin is often used in conjunction with AMBERLITE™ 14i Inert Resin, which floats and prevents resin fines from entering the distribution system.

Styrenic AMBERLITE™ FPA90RF CI can be used as a single component or following acrylic AMBERLITE™ FPA98 CI Ion Exchange Resin for highly-colored feed solutions.

Applications

- Cane sugar decolorization

Typical Properties

Physical Properties	
Copolymer	Styrene-divinylbenzene
Matrix	Macroporous
Type	Strong base anion, Type I
Functional Group	Trimethylammonium
Physical Form	Off-white, opaque, spherical beads
Chemical Properties	
Ionic Form as Shipped	Cl ⁻
Total Exchange Capacity	≥ 1.00 eq/L
Water Retention Capacity	58 – 64%
Particle Size §	
Particle Diameter	650 – 820 µm
Uniformity Coefficient	≤ 1.5
< 300 µm	≤ 0.1%
> 1180 µm	≤ 2.0%
Stability	
Swelling	Cl ⁻ → OH ⁻ : ~25%
Density	
Particle Density	1.050 – 1.080 g/mL
Shipping Weight	700 g/L

§ 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 (Cl ⁻ form)	80°C (176°F)
Bed Depth, min.	1000 mm (3.3 ft)
Flowrates	
Service	2 – 4 BV*/h (or up to 8 BV/h)
Sweeten-off	Service flowrate for 1.5 – 2 BV
Backwash	See Figure 1
Regeneration	2 BV/h
Slow Rinse	2 BV/h
Sweeten-on	Service flowrate for 1 BV
Contact Time	
Regeneration	≥ 45 – 60 minutes
Displacement Rinse	≥ 60 minutes
Total Rinse Requirement	5 BV
Regenerant	
Concentration	NaCl + NaOH
Level, 100% basis	10% NaCl 0.2% NaOH
Co-current	180 – 200 kg/m ³ (11.3 – 12.5 lb/ft ³)
Counter-current	150 kg/m ³ (9.4 lb/ft ³)
Temperature	25 – 70°C (77 – 158°F)

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

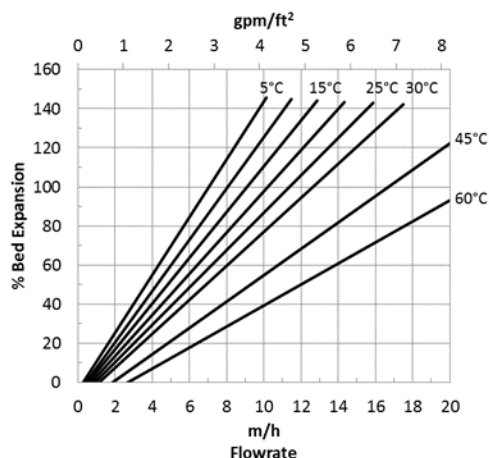
Refer to the brochure [Ion Exchange Resins for Cane Sugar Decolorization](#) (Form No. 177-03556) for additional information.

Hydraulic Characteristics

Bed expansion of AMBERLITE™ FPA90RF CI Ion Exchange Resin as a function of backwash flowrate and temperature is shown in Figure 1.

Figure 1: Backwash Expansion

Temperature = 5–60°C (41–140°F)



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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.

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