Product Data Sheet

AMBERLITE™ FPA98 Cl Ion Exchange Resin

Food- and Biopharmaceutical-grade, Acrylic, Macroporous, Strong Base Anion Exchange Resin for Cane Sugar Decolorization and Biopharmaceutical Processing

Description

AMBERLITE™ FPA98 Cl 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, soft drink bottlers, and biopharmaceutical manufacturers around the world have installed AMBERLITE™ FPA98 Cl to successfully decolorize heavily-colored solutions.

AMBERLITE™ FPA98 Cl is an acrylic, macroporous, Type I strong base anion resin.

Cane Sugar Decolorization

AMBERLITE™ FPA98 Cl Resin is an excellent choice for cane sugar decolorization, offering advantages such as:

- Specially designed for the decolorization of highly colored (> 500 ICUMSA) liquid sugar syrups
- Excellent desorption of the organic color bodies during regeneration, reducing the fouling associated with other types of resin such as those based on crosslinked polystyrene
- Excellent physical stability and resistance to osmotic shock

Acrylic AMBERLITE™ FPA98 Cl resin can be used as a single component for gross decolorization for highly colored solutions or preceding a styrenic resin such as AMBERLITE™ FPA900UPS Cl, AMBERLITE™ FPA90RF Cl, or AMBERLITE™ FPA90 Cl Ion Exchange Resins, where the styrenic resin is used as a polisher for very low color final products.

Biopharmaceutical Processing

AMBERLITE™ FPA98 Cl Resin is an excellent resin for the decolorization of high molecular weight organic color bodies in many bioprocessing applications such as natural product extraction and recovery of antibiotics from fermentation broth, offering advantages such as:

- Effective adsorption of high molecular weight organics
- Low organic fouling properties, typical of an acrylic matrix, due to excellent desorption of the organic color bodies during regeneration

Applications

- Cane sugar decolorization
- Bioprocessing decolorization
- Heparin purification

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Typical Properties

Physical Properties	
Copolymer	Crosslinked acrylic
Matrix	Macroporous
Type	Strong base anion, Type I
Functional Group	Trimethylammonium
Physical Form	White, opaque, spherical beads
Chemical Properties	
Ionic Form as Shipped	Cl^-
Total Exchange Capacity	≥ 0.8 eq/L
Water Retention Capacity	66 – 72%
Particle Size [§]	
Particle Diameter	630 – 850 µm
< 300 µm	≤ 1.0%
> 1180 µm	≤ 5.0%
Density	
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	NaCl + NaOH
Concentration	10% NaCl | 0.2% NaOH
Level, 100% basis	
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 m^3 solution per m^3 resin or 7.5 gal solution per ft^3 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™ FPA98 Cl Ion Exchange Resin as a function of backwash flowrate and temperature is shown in Figure 1.

Pressure drop data for AMBERLITE™ FPA98 Cl 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)

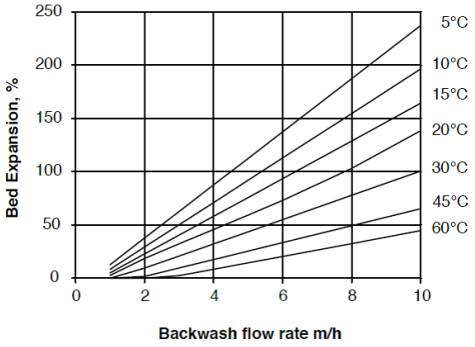
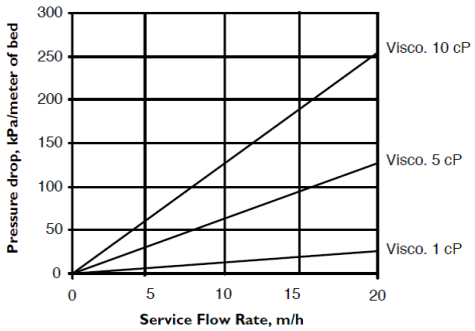


Figure 2: Pressure Drop

Viscosity = 1 – 10 cP



Limits of Use

For specific pharmaceutical and food processing applications, it is recommended that all potential users seek advice from DuPont in order to determine the proper resin selection and usage.

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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