

AmberLite™ FPC23 H Ion Exchange Resin

Food-grade, High Capacity, Macroporous, Strong Acid Cation Exchange Resin

Description

AmberLite™ FPC23 H Ion Exchange Resin is a macroporous, high capacity, strong acid cation resin designed for the deashing of corn syrups and the softening of beet sugar syrups. It is recommended for use where severe conditions exist such as those present in the Quentin process to soften beet sugar juices.

The black color of AmberLite™ FPC23 H makes it easy to confirm a clean separation from AmberLite™ FPA91 OH Ion Exchange Resin when used in polishing mixed bed applications.

AmberLite™ FPC23 H has exhibited a very efficient and economical use of acid regeneration, as well.

Applications

- Corn and starch sweetener deashing
- Beet sugar softening
- Sweetener mixed bed polishing

Typical Properties

Physical Properties

Copolymer	Styrene-divinylbenzene
Matrix	Macroporous
Type	Strong acid cation
Functional Group	Sulfonate
Physical Form	Black, opaque, spherical beads

Chemical Properties

Ionic Form as Shipped	H ⁺
Total Exchange Capacity	≥ 2.20 eq/L
Water Retention Capacity	44 – 53%

Particle Size §

Particle Diameter	580 – 800 µm
< 425 µm	≤ 5.0%
> 1180 µm	≤ 5.0%

Stability

Swelling	Na ⁺ → H ⁺ : 10%
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Density

Bulk Density as Shipped	830 g/L
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§ 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	135°C (275°F)	
pH Range	0 – 14	
Bed Depth, min.	700 mm (2.3 ft)	
Flowrates		
Service	5 – 20 BV*/h	
Regeneration		
HCl	2 – 4 BV/h	
H ₂ SO ₄	4 – 12 BV/h	
Backwash	See Figure 1	
Slow Rinse	Regeneration flowrate for 2 BV	
Fast Rinse (if applicable)	Service flowrate for 2 – 4 BV	
Contact Time		
Regeneration	≥ 30 – 45 minutes	
Displacement Rinse	≥ 30 – 45 minutes	
Total Rinse Requirement	2 – 5 BV	
Regenerant	HCl	H ₂ SO ₄
Concentration	4 – 10%	1 – 5%
Level, 100% basis	45 – 150 kg/m ³ (2.8 – 9.4 lb/ft ³)	50 – 200 kg/m ³ (3.1 – 12.5 lb/ft ³)
Temperature, max.	93°C (200°F)	

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

Hydraulic Characteristics

Bed expansion of AmberLite™ FPC23 H Ion Exchange Resin as a function of backwash flowrate and temperature is shown in Figure 1.

Pressure drop data for AmberLite™ FPC23 H as a function of service flowrate and water temperature is shown in Figure 2. These pressure drop expectations are valid at the start of the service run with clean water and a well-classified bed.

Figure 1: Backwash Expansion

Temperature = 10 – 90°C (50 – 194°F)

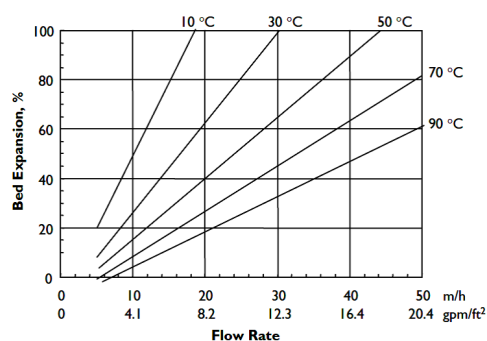
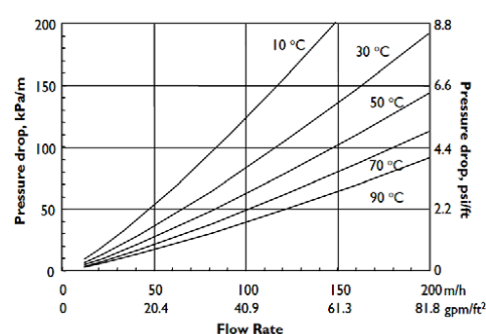


Figure 2: Pressure Drop

Temperature = 10 – 90°C (50 – 194°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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