ROHM AND HAAS | Beverages and Nutrition

PRODUCT DATA SHEET

AMBERLITE™ FPA53

Food Grade Weak Base Anion Exchanger

For the Treatment of Sweeteners and Organic Acids and Biopharmaceutical Applications

FOOD PROCESSING

AMBERLITE FPA53 is a unique acrylic, weakly basic, anion exchange for use in the deashing and deacidification of food streams including starch based sweeteners. Other uses include the treatment of organic acids and dairy products. AMBERLITE FPA53 resin contains tertiary amine functionality on a gel-type, acrylic matrix making it unique in the food processing industry. An absence of strongly basic exchange sites allows the deacidification of glucose and fructose syrups with no product degradation as well as no isomerisation.

BIOPHARMACEUTICAL PROCESSING

AMBERLITE FPA53 is a unique solution for the decolorization of organic color bodies of most of bioprocesses. It is extensively used in the recoveries of b-lactam antibiotics from fermentation broth.
AMBERLITE FPA53 is widely used in conjunction with Amberlite XAD 1600 in the biopurification of cephalosporin C.
Because of its acrylic polymeric matrix, it provides superior physical stability, less fouling and less breakdown yielding in longer life time within this type of application.

PROPERTIES AND SUGGESTED OPERATING CONDITIONS

The acrylic polymer matrix is extremely flexible providing far superior physical stability, and organic fouling resistance to conventional polystyrene based resins. Less breakdown and less fouling yields longer life in the application.

AMBERLITE FPA53 is a gel-type resin giving it higher capacity and longer run lengths than macroporous-type resins. AMBERLITE FPA53 is higher in basicity than other weakly basic ion exchange resins and thus is an excellent choice for removal of weak organic acids. In addition, this resin contains no strongly basic functional sites.

PROPERTIES

Matrix	Crosslinked acrylic gel structure
Functional groups	Tertiary amines
Physical form	Transparent white beads
Ionic form as shipped	Free Base (FB)
Total exchange capacity [1]	≥ 1.6 eq/L (FB form)
Moisture holding capacity [1]	56 to 64 % (FB form)
Shipping weight	700 g/L
Harmonic mean size	0.500 - 0.750 mm
Fine contents [1]	< 0.300 mm : 3.0 % max
Maximum reversible swelling	FB → Cl^- : 30 %

[1] *Contractual value*
Test methods available upon request

SUGGESTED OPERATING CONDITIONS

Maximum operating temperature	50°C		
Minimum bed depth	700 mm		
Service flow rate	4 to 8 BV*/h		
Regenerant	NaOH	Na_2CO_3	NH_3
Regenerant flow rate (BV/h)	2 to 8	2 to 4	2 to 4
Regenerant concentration (%)	2 to 4	5 to 8	1 to 4
Regenerant level	130 % of ionic load		
Minimum contact time	30 minutes		
Slow rinse	2 BV at regeneration flow rate		
Fast rinse	8 to 16 BV at 10 BV/h		

** 1 BV (Bed Volume) = 1 m^3 solution per m^3 resin*

FOOD PROCESSING

As governmental regulations vary from country to country, it is recommended that potential users seek advice from their Rohm and Haas representative in order to determine the best resin choice, optimum operating and regeneration conditions.

HYDRAULIC CHARACTERISTICS

Figure 1 shows the bed expansion of AMBERLITE FPA53 as a function of backwash flow rate and water temperature.

Figure 2 shows the pressure drop data for AMBERLITE FPA53 as a function of service flow rate and viscosity of the solution to be treated.

Conversion Factors:

- 1 kPa/m equals 0.0442 psi/ft
- 1 m/h equals 0.41 USgpm/ft^2

Figure 1: Bed Expansion

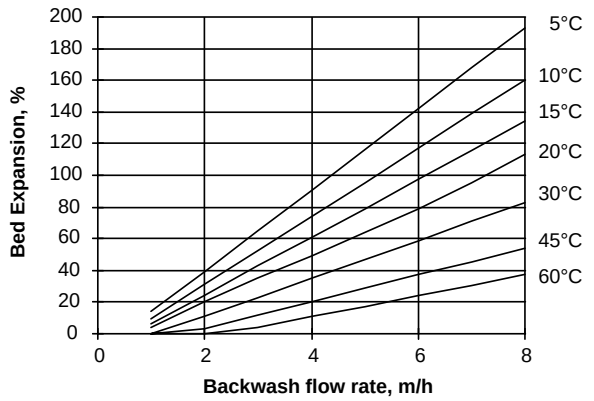

Figure 2: Pressure Drop (at 24 °C)

All our products are produced in ISO 9001 certified manufacturing facilities.

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Ion exchange resins and polymeric adsorbents, as produced, contain by-products resulting from the manufacturing process. The user must determine the extent to which organic by-products must be removed for any particular use and establish techniques to assure that the appropriate level of purity is achieved for that use. The user must ensure compliance with all prudent safety standards and regulatory requirements governing the application. Except where specifically otherwise stated, Rohm and Haas Company does not recommend its ion exchange resins or polymeric adsorbents, as supplied, as being suitable or appropriately pure for any particular use. Consult your Rohm and Haas technical representative for further information. Acidic and basic regenerant solutions are corrosive and should be handled in a manner that will prevent eye and skin contact. Nitric acid and other strong oxidising agents can cause explosive type reactions when mixed with Ion Exchange resins. Proper design of process equipment to prevent rapid buildup of pressure is necessary if use of an oxidising agent such as nitric acid is contemplated. Before using strong oxidising agents in contact with Ion Exchange Resins, consult sources knowledgeable in the handling of these materials.