AMBERLITE™ FPA51

Food Grade Weak Base Anion Exchanger

Introduction

AMBERLITE FPA51 has been specifically designed for the deashing and deacidification of liquid food streams including starch based sweeteners. AMBERLITE FPA51 has been sized to be used both in the fixed bed system commonly used in the corn sweetener industry as well as moving bed systems and polishing mixed bed. It is the product of choice for the deashing and decolorization of glucose, fructose and related starch based sweeteners and derivatives as well as gelatin and other food process streams such as fruit juices.

AMBERLITE FPA51: Today, a number of different antibiotic classes have been isolated, chemically modified and are used extensively by physicians in treating infectious diseases. As most traditional antibiotics were derived from yeast or bacteria, their large scale production is based on fermentation processes.

AMBERLITE FPA51 is one of the solution provided for decolorization of organic color bodies in those downstream bioprocesses.

Properties and Suggested Operating Conditions

AMBERLITE FPA51 is a macroreticular, weakly basic anionic exchange resin containing a tertiary amine functionality on a macroreticular crosslinked polystyrene matrix. Its high level of porosity gives AMBERLITE FPA51 an excellent combination of physical stability and high operating efficiency resulting in long process cycle times as compared to products having a higher static volume capacity. This porous network also provides a more complete adsorption and desorption of large organic molecules resulting in superior color removal compared to other weakly basic anionic exchange resins.

Properties

Matrix	Crosslinked polystyrene
Functional groups	$-NR_2$: at least 85 %
Physical form	Opaque spherical beads
Ionic form as shipped	Free base (FB)
Total exchange capacity[1]	≥ 1.3 eq/L (FB form)
Moisture holding capacity[1]	56 to 62 % (FB form)
Shipping weight	660 g/L
Harmonic mean size	0.490 - 0.690 mm
Fines content[1]	< 0.300 mm : 1.0 % max
Irreversible swelling	FB → Cl^- : 8 %
Reversible swelling	FB → Cl^- : 25 %

[1]Contractual value

Suggested Operating Conditions

Maximum operating temperature range	100 °C
Minimum bed depth	700 mm
Service flow rate	2 to 6 BV*/h depending on syrup concentration
Regenerant	NaOH
Regenerant low rate	1 to 2 BV/h
Regenerant concentration	4%
Regenerant level	60 g/L_R
Minimum contact time	30 minutes
Slow rinse	2 BV at regeneration flow rate
Fast rinse	5 to 10 BV at service flow rate with condensate or softened water

* 1 BV = 1m^3 solution per m^3 of 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 FPA51 as a function of backwash flow rate and water temperature.

Figure 2 shows the pressure drop data for AMBERLITE FPA51 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

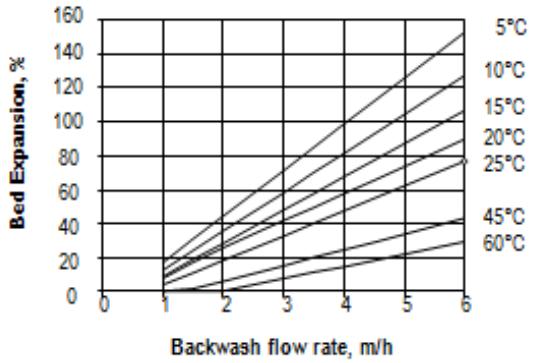
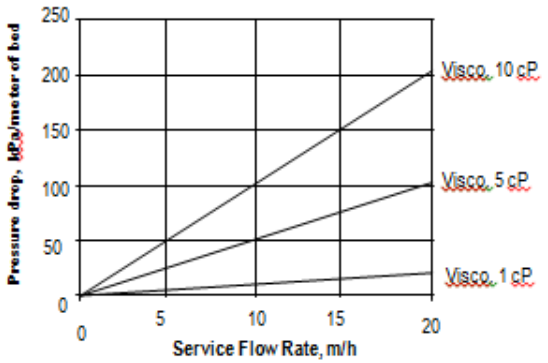


Figure 2: Pressure Drop (at 24 °C)



For more information about DOW™ resins, call the Dow Water & Process Solutions business:
North America: 1-800-447-4369
Latin America: (+55) 11-5188-9222
Europe: +800-3-694-6367
Italy: +800-783-825
South Africa: +0800 99 5078
Pacific: +8007776 7776
China: +400 889-0789
http://www.dowwaterandprocess.com