AMBERLITE™ FPA54

Food Grade Weak Base Anion Exchanger

Introduction

AMBERLITE™ FPA54 is a unique, highly porous, weak base, anion exchange resin, based on a crosslinked phenol-formaldehyde matrix. The low swelling characteristics of AMBERLITE FPA54 give it excellent osmotic and physical stability resulting in less product loss and longer product life than conventional styrenic resins.

The combination of the unique porous matrix and the hydrophilic phenolic structure of AMBERLITE FPA54 permits the reversible adsorption of high molecular weight, organic colour bodies frequently found in solutions of natural product and fermentation products.

AMBERLITE FPA54 exhibits a high selectivity for sulphates and phosphates and therefore makes it ideal for the treatment of both citric and lactic acids derived from fermentation where it has a long history of use particularly due to its excellent osmotic stability. It has proven more effective than conventional polystyrene resins in this and other food product applications.

Properties

Matrix	Crosslinked phenol-formaldehyde polycondensate
Functional groups	Tertiary amine
Physical form	Grey coloured granules
Ionic form as shipped	Free Base (FB)
Total exchange capacity	≥ 1.8 eq/L (FB form)
Moisture holding capacity	60 to 65 % (FB form)
Shipping weight	650 g/L
Harmonic mean size	0.470 - 0.740 mm
Fines content	< 0.300 mm : 2.0 % max

Suggested Operating Conditions

Water Treatment			
Maximum operating temperature	50°C		
Minimum bed depth	700 mm		
Service flow rate	up to 15 BV*/h		
Regenerants	NaOH	Na_2CO_3	NH_3
Regenerant Level (g/L_R)	40 to 80	65 to 110	20 to 40
Regenerant Concentration (%)	2 to 6	5 to 8	1 to 4
Regenerant Flow rate (BV/h)	2 to 8 (min. contact time : 30 minutes)		
Slow rinse	4 BV at regeneration flow rate		
Fast rinse	8 to 12 BV at 10 BV/h		

Food processing

As governmental regulations vary by country, it is recommended that potential users seek advice from Dow Water & Process Solutions in order to determine the best resin choice, optimum operating and regeneration conditions.

Hydraulic Characteristics

Figure 1 shows the bed expansion of AMBERLITE™ FPA54 as a function of backwash flow rate and for a water temperature of 20°C.

Figure 2 shows the pressure drop data for AMBERLITE™ FPA54 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

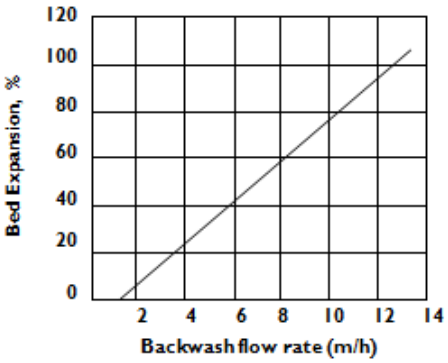
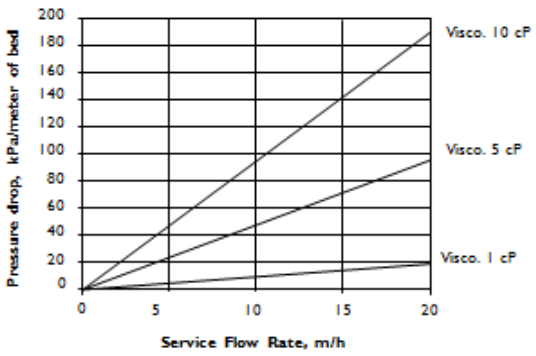


Figure 2: Pressure Drop (at 24°C)



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