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AMBERLITE™ IRC86RF

Industrial Grade Weak Acid Exchanger

Introduction

AMBERLITE IRC86RF resin is a gel type high capacity weak acid cation exchange resin containing carboxylic acid groups. The principal application of this resin is dealkalization of industrial waters. AMBERLITE IRC86RF resin, in the hydrogen cycle, removes hardness associated with alkalinity. The particle size distribution of AMBERLITE IRC86RF is designed for use in packed bed and floating bed systems. When used in combination with a strong acid cation exchanger in demineralizer systems, it reduces acid regenerant consumption. Due to its high swelling, it is not recommended to use AMBERLITE IRC86RF in applications where the resin is fully converted from H^+ to Na^+ form.

Properties

Physical form	Clear amber spherical beads
Matrix	Gel polyacrylic copolymer
Functional group	Carboxylic acid
Ionic form as shipped	H^+
Total exchange capacity	≥ 4.10 eq/L (H^+ form)
Moisture holding capacity	47 to 53 % (H^+ form)
Shipping weight	790 g/L
Particle size	
Uniformity coefficient	≤ 1.5
Harmonic mean size	0.600 to 0.800 mm < 0.300 mm 0.1 % max
Reversible swelling (total conversion)	$H^+ \rightarrow Na^+$ ≤ 100 % $H^+ \rightarrow Ca^{++}$ ≤ 15 % $H^+ \rightarrow Mg^{++}$ ≤ 50 %

Suggested Operating Conditions

Maximum operating temperature	100°C
Minimum bed depth	700 mm
Service flow rate	5 to 70 BV*/h
Regeneration	
Regenerant	HCl H_2SO_4
Level	104 to 110 % of operating capacity
Concentration (%)	2 to 5 0.5 to 0.7
Minimum contact time	30 minutes
Slow rinse	2 BV at regeneration flow rate
Fast rinse	2 to 4 BV at service flow rate

Performance

Operating capacity

The operating capacity of AMBERLITE IRC86RF resin is a function of analysis, temperature and service flow rate of water. Data providing information to calculate the capacity are given in the engineering data sheet (EDS 0235 A).

Regeneration

AMBERLITE IRC86RF resin is readily regenerated with little over stoichiometric amounts of strong acids. If sulfuric acid is used, care must be taken to apply a low concentration of H_2SO_4 (• 0.7 %) in order to avoid calcium sulfate precipitation.

Limits of use

Due to its high swelling between H^+ and Na^+ or NH_4 forms, it is recommended AMBERLITE IRC86RF resin between these ionic not to use forms. AMBERLITE IRC86RF resin is suitable for industrial uses. For all other specific applications such as pharmaceutical, food processing or potable water applications, it is recommended that all potential users seek advice from Rohm and Haas in order to determine the best resin choice and optimum operating conditions.

Hydraulic characteristics

Figure 1 shows the bed expansion of AMBERLITE IRC86RF resin as a function of backwash flow rate and water temperature. Figure 2 shows the pressure drop data for AMBERLITE IRC86RF resin, as a function of service flow rate and water temperature. Pressure drop data are valid at the start of the service run with clear water and a correctly classified bed. The hydraulic curves are for H+ form resin.

Figure 1: Bed Expansion

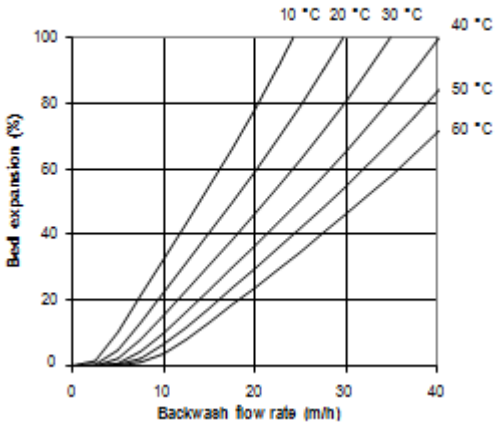
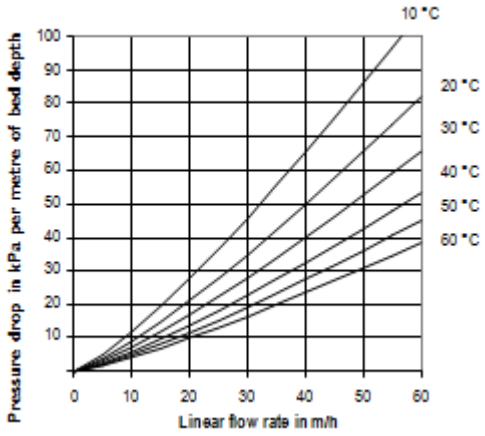


Figure 2: Pressure Drop



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