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AMBERLITE™ IRC86SB

Industrial Grade Weak Acid Exchanger

Introduction

AMBERLITE IRC86SB resin is a high capacity weak acid cation exchange resin containing carboxylic acid groups. It is characterized by an outstanding physical and chemical stability. The particle size distribution of AMBERLITE IRC86SB resin has been specifically selected to give optimum performance in stratified bed applications paired with AMBERJET™ 1500 H resin. This combination allows to reduce acid consumption as well as capital cost in deionisation.

AMBERLITE IRC86SB resin, in the hydrogen cycle, removes hardness associated with alkalinity. In the process, CO_3^{2-} and HCO_3^- are converted to CO_2 which can be removed by degasification. The presence of chlorine in the water to be treated does not affect the performance of the resin.

Properties

Physical form	Clear yellow 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	
Harmonic mean size	0.450 - 0.600 mm
Uniformity coefficient	≤ 1.6 <0.315 mm 4.0% max.
Reversible swelling (total conversion)	$\text{H}^+ \rightarrow \text{Na}^+ \leq 100\%$ $\text{H}^+ \rightarrow \text{Ca}^{++} \leq 15\%$ $\text{H}^+ \rightarrow \text{Mg}^{++} \leq 50\%$

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 IRC86SB 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 IRC86SB resin is readily regenerated with little over stoichiometric amounts of strong acids. If the use of sulphuric acid is contemplated, care must be taken to apply a low concentration of H₂SO₄ (ca 0.7%) in order to avoid calcium sulphate precipitation.

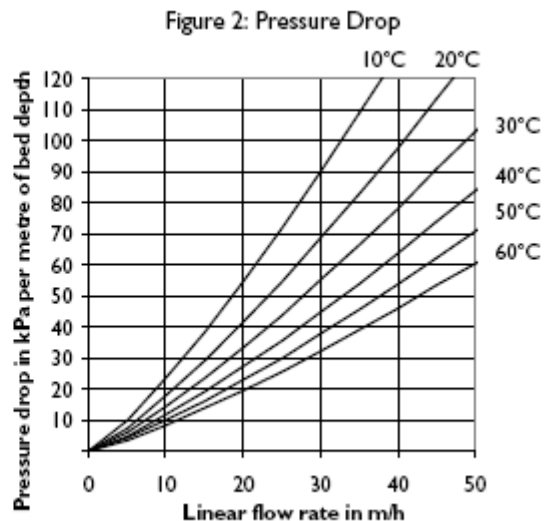
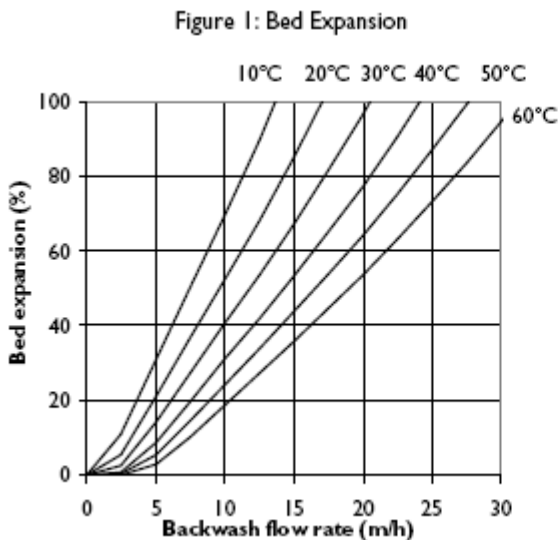
Limits of use

Due to its high swelling between H⁺ and Na⁺ or NH⁺ forms, it is recommended not to use AMBERLITE IRC86SB resin between these ionic forms. AMBERLITE IRC86SB 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 IRC86SB resin as a function of backwash flow rate and water temperature.

Figure 2 shows the pressure drop data for AMBERLITE IRC86SB resin, as a function of service flow rate and water temperature. Pressure drop data are valid at the start of the service run with a clear water and a correctly classified bed.



For more information about DOW™ resins, call the Dow Water & Process Solutions business:

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