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PRODUCT DATA SHEET

AMBERLITE™ IRC86

Industrial Grade Weak Acid Exchanger

AMBERLITE IRC86 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 IRC86 resin, in the hydrogen cycle, removes hardness associated with alkalinity. 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 IRC86 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 [1]	≥ 4.10 eq/L (H^+ form)
Moisture holding capacity [1]	47 to 53 % (H^+ form)
Shipping weight	790 g/L
Particle size	
Uniformity coefficient [1]	≤ 1.80
Harmonic mean size [1]	0.580 to 0.780 mm
< 0.300 mm [1]	2.0 % max
Reversible swelling	$H^+ \rightarrow Na^+$ ≤ 100 %
(total conversion)	$H^+ \rightarrow Ca^{++}$ ≤ 15 %
	$H^+ \rightarrow Mg^{++}$ ≤ 50 %

[1] *Contractual value*
Test methods are available on request.

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

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

PERFORMANCE

Operating capacity

The operating capacity of AMBERLITE IRC86 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 IRC86 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

AMBERLITE IRC86 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 IRC86 resin as a function of backwash flow rate and water temperature. Figure 2 shows the pressure drop data for AMBERLITE IRC86 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

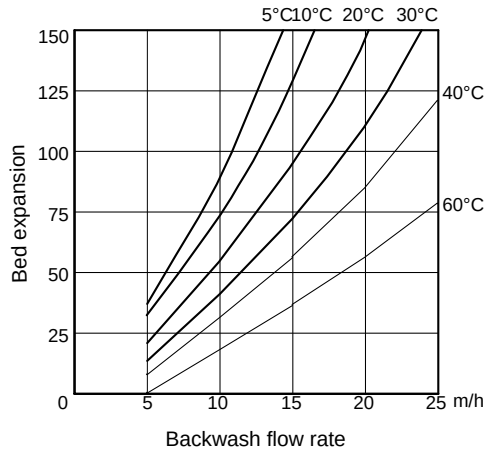
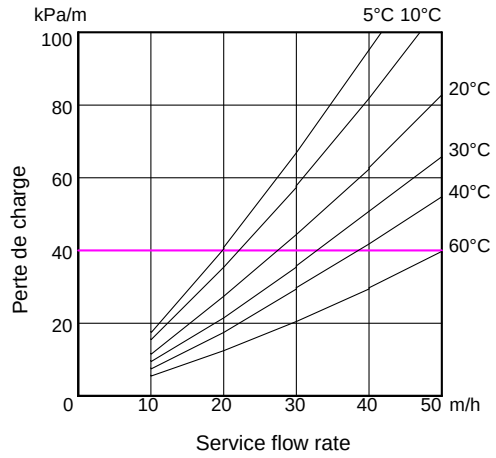


Figure 2: Pressure Drop



ROHM AND HAAS

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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.