



# AMBERLITE® IRC86SB

Weak Acid Cation Exchanger

## PRODUCT DATA SHEET

AMBERLITE IRC86SB 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 has been specifically selected to give optimum performance in stratified bed applications paired with AMBERJET 1500 H. This combination reduces acid

consumption as well as capital cost in deionization. AMBERLITE IRC86SB, in the hydrogen cycle, removes hardness associated with alkalinity. In the process,  $\text{CO}_3^{=}$  and  $\text{HCO}_3^-$  are converted to  $\text{CO}_2$  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

Matrix _____	Gel polyacrylic copolymer
Functional Groups _____	Carboxylic Acid
Physical Form _____	Clear yellow beads
Ionic Form as Shipped _____	Hydrogen
Total Exchange Capacity _____	4.10 meq/ml minimum ( $\text{H}^+$ form)
Moisture Holding Capacity _____	47 to 53 % ( $\text{H}^+$ form)
Shipping Weight _____	49 lbs/ft <sup>3</sup>
Harmonic Mean Size _____	0.45 - 0.60 mm
Uniformity Coefficient _____	1.6 maximum
Maximum Reversible Swelling _____	$\text{H}^+ \rightarrow \text{Na}^+$ : approximately 100 %

*Test methods are available on request.*

## SUGGESTED OPERATING CONDITIONS

pH Range _____	5 to 14
Maximum Operating Temperature _____	250 °F
Minimum Bed Depth _____	24 inches
Service Flow Rate _____	0.5 to 5.5 gpm/ft <sup>3</sup>
<b>Regenerants (100 % basis) _____</b>	<b>HCl (30 %)      H<sub>2</sub>SO<sub>4</sub> (66 ° Bé)</b>
Flow rate (gpm/ft <sup>3</sup> ) _____	0.25 to 0.5      0.05 to 0.09
Concentration (%) _____	2 to 8            15 to 40
Level _____	104 to 110 % of the theory
Minimum Contact Time _____	30 minutes
Slow Rinse _____	15 gal/ft <sup>3</sup> at regeneration flow rate
Fast Rinse _____	15 to 90 gal/ft <sup>3</sup> at service flow rate

## PERFORMANCE

### Operating capacity

The operating capacity of AMBERLITE IRC86SB is a function of analysis, temperature and service flow rate of water.

### Regeneration

AMBERLITE IRC86SB is readily regenerated with little over stoichiometric amounts of strong acids. If the use of sulfuric acid is contemplated, care must be taken to apply a low concentration of H<sub>2</sub>SO<sub>4</sub> (ca 0.7 %) in order to avoid calcium sulfate precipitation.

## HYDRAULIC CHARACTERISTICS

AMBERLITE IRC86SB gives a pressure drop of about 1.15 psi/ft bed depth per 4.1 gpm/ ft<sup>2</sup> at 60°F.

A backwash flow rate of 3.3 gpm/ft<sup>2</sup> gives a bed expansion of about 65 % at 60°F.

## LIMITS OF USE

Due to its high swelling between H<sup>+</sup> and Na<sup>+</sup> or NH<sub>2</sub><sup>+</sup> forms, it is recommended AMBERLITE IRC86SB **NOT** be used between these ionic forms. AMBERLITE IRC86SB 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.

Rohm and Haas/Ion Exchange Resins - Philadelphia, PA - Tel. (800) RH AMBER - Fax: (215) 409-4534  
Rohm and Haas/Ion Exchange Resins - 75579 Paris Cedex 12 - Tel. (33) 1 40 02 50 00 - Fax : 1 43 45 28 19

WEB SITE: <http://www.rohmhaas.com/ionexchange>



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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.

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