**AMBERLITE™ IRC86SB** Industrial Grade Weak Acid Exchanger

**Description**

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.

**Typical Properties**

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical form</td>
<td>Clear yellow spherical beads</td>
</tr>
<tr>
<td>Matrix</td>
<td>Gel polyacrylic copolymer</td>
</tr>
<tr>
<td>Functional group</td>
<td>Carboxylic acid</td>
</tr>
<tr>
<td>Ionic form as shipped</td>
<td>H$^+$</td>
</tr>
<tr>
<td>Total exchange capacity $^{[1]}$</td>
<td>$\geq 4.10$ eq/L (H$^+$ form)</td>
</tr>
<tr>
<td>Moisture holding capacity $^{[1]}$</td>
<td>47 to 53% (H$^+$ form)</td>
</tr>
<tr>
<td>Shipping weight</td>
<td>790 g/L</td>
</tr>
<tr>
<td>Harmonic mean size</td>
<td>0.450 - 0.600 mm</td>
</tr>
<tr>
<td>Uniformity coefficient</td>
<td>$\leq$ 1.6</td>
</tr>
<tr>
<td>$&lt;0.315$ mm $^{[1]}$</td>
<td>4.0% max.</td>
</tr>
</tbody>
</table>

Maximum reversible swelling (total conversion)

- H$^+$ $\rightarrow$ Na$^+$ : 100%
- 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$_2$SO$_4$
- **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 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 NH₄⁺ 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.

All our products are produced in ISO 9001 certified manufacturing facilities.