PRODUCT DATA SHEET

AMBERLITE™ IRA96RF
Industrial Grade Weak Base Anion Exchanger

AMBERLITE IRA96RF resin is a macroreticular weak base anion exchange resin. Its very stable structure and limited reversible swelling make it very resistant to osmotic shock. The high degree of porosity of this resin provides efficient adsorption of large organic molecules and their desorption during regeneration, thus allowing excellent protection against organic fouling. AMBERLITE IRA96RF resin is intended primarily for the removal of strong acids from water following a strongly acidic cation exchange resin, and it provides excellent protection against organic fouling for the strong base anion exchange resin placed in the same vessel. The particle size distribution of AMBERLITE IRA96RF resin has been specifically selected to give optimum performance in packed bed and floating bed applications.

PROPERTIES

<table>
<thead>
<tr>
<th>Physical form</th>
<th>Tan opaque spherical beads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Matrix</td>
<td>Styrene divinylbenzene copolymer</td>
</tr>
<tr>
<td>Functional group</td>
<td>Secondary amine : at least 85 %</td>
</tr>
<tr>
<td>Ionic form as shipped</td>
<td>Free base (FB)</td>
</tr>
<tr>
<td>Total exchange capacity</td>
<td>≥ 1.25 eq/L (FB form)</td>
</tr>
<tr>
<td>Moisture holding capacity</td>
<td>57 to 63 % (FB form)</td>
</tr>
<tr>
<td>Shipping weight</td>
<td>670 g/L</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>1.040 to 1.060 (FB form)</td>
</tr>
</tbody>
</table>

Particle size

<table>
<thead>
<tr>
<th>Uniformity coefficient</th>
<th>≤ 1.50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harmonic mean size</td>
<td>0.630 to 0.830 mm</td>
</tr>
<tr>
<td>&lt; 0.300 mm</td>
<td>0.1 % max</td>
</tr>
</tbody>
</table>

Reversible swelling

| FB → Cl⁻ ≤ 15 % |

<sup>[1]</sup> Contractual value
Test methods are available on request.

SUGGESTED OPERATING CONDITIONS

| Maximum operating temperature | 60°C |
| Minimum bed depth              | 700 mm |
| Service flow rate              | 5 to 40 BV*/h |

Regeneration

<table>
<thead>
<tr>
<th>Regenerant</th>
<th>NaOH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level</td>
<td>120 % of ionic load</td>
</tr>
<tr>
<td>Concentration</td>
<td>2 to 4 %</td>
</tr>
<tr>
<td>Minimum contact time</td>
<td>30 minutes</td>
</tr>
<tr>
<td>Slow rinse</td>
<td>2 BV at regeneration flow rate</td>
</tr>
<tr>
<td>Fast rinse</td>
<td>4 to 8 BV at service flow rate</td>
</tr>
</tbody>
</table>

* 1 BV (Bed Volume) = 1 m³ solution per m³ resin
PERFORMANCE

Operating capacity
The operating capacity of AMBERLITE IRA96RF resin, when used to deionise water, depends on a number of factors:

• Ionic load,
• CO₂ content,
• SO₄/FMA ratio,
• Water temperature.

The Engineering data sheet EDS 0254 A provides information to calculate the operating capacity of AMBERLITE IRA96RF resin used in water treatment.

Organic matter
Thanks to its high porosity, AMBERLITE IRA96RF resin can adsorb reversibly organic molecules from solution. It is therefore very useful to protect strongly basic resins from irreversible fouling.

Physical stability
The tough, durable structure of AMBERLITE IRA96RF resin associated with the limited reversible volume change in service offers excellent resistance to attrition from osmotic or physical stress.

LIMITS OF USE

AMBERLITE IRA96RF 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 IRA96RF resin as a function of backwash flow rate and water temperature. Figure 2 shows the pressure drop data for AMBERLITE IRA96RF 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. These data are valid for water treatment and have to be corrected according to the solution to be treated.

Figure 1: Bed Expansion
Figure 2: Pressure Drop

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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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