AMBERLITE IRN97 H resin is a uniform particle size strongly acidic high capacity gelular polystyrene cation exchanger supplied in the hydrogen form. This resin is Nuclear Grade and processed to the highest purity standards to meet the most stringent requirements of the nuclear power industry.

The uniform particle size and the absence of fine resin beads results in a lower pressure drop compared to conventional resins.

**PHYSICAL CHARACTERISTICS**

- **Physical form**
  - Dark amber translucent spherical beads
- **Matrix**
  - Polystyrene divinylbenzene copolymer
- **Functional group**
  - Sulfonic acid
- **Ionic form as shipped**
  - H⁺
- **Total exchange capacity**
  - ≥ 2.15 eq/L (H⁺ form)
- **Moisture holding capacity**
  - 45 to 51 % (H⁺ form)
- **Shipping weight**
  - 800 g/L
- **Particle size**
  - Uniformity coefficient
    - ≤ 1.2
  - < 0.300 mm
    - 0.1 % max
  - Whole beads
    - ≥ 98 %
  - Breaking weight (average)
    - ≥ 350 g/bead
    - ≥ 95 %
  - Ionic conversion
    - ≥ 99 % H⁺

**SUGGESTED OPERATING CONDITIONS**

- **Maximum operating temperature**
  - 120 °C
- **Minimum bed depth**
  - 800 mm
- **Service flow rate**
  - 8 to 50 BV*/h
- **Service velocity**
  - 60 m/h maximum

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

The manufacturing process for this resin is controlled to keep inorganic impurities at the lowest possible level. Special treatment procedures are also used to remove traces of soluble organic compounds. These high standards of resin purity will help keep nuclear systems free of contaminants and deposits, and prevent increases in radioactivity levels due to activation of impurities in the reactor core.

<table>
<thead>
<tr>
<th>Purity</th>
<th>mg/kg dry resin</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al</td>
<td>≤ 50</td>
</tr>
<tr>
<td>Cu</td>
<td>≤ 10</td>
</tr>
<tr>
<td>Fe</td>
<td>≤ 50</td>
</tr>
<tr>
<td>Na</td>
<td>≤ 50</td>
</tr>
</tbody>
</table>

APPLICATIONS

AMBERLITE IRN97 H resin has proved highly effective in the following applications:

Primary water treatment: Removal of fission products, activated corrosion products, and suspended matter. It is also used to control the pH of the reactor coolant stream by removing the excess Lithium.

Radwaste treatment: Removal of radioactive cations such as $^{137}$Cesium from waste streams.

Decontamination: Removal of cationic radioactive material from spent decontaminating solutions.

Stream generators blowdown purification: The high capacity of AMBERLITE IRN97 H resin provides a long service cycle in the removal of cationic impurities in the presence of ammonia.

HYDRAULIC CHARACTERISTICS

Pressure drop

The approximate pressure drop for each meter of bed depth of AMBERLITE IRN97 H resin in normal downflow operation at various temperatures and flow rates is shown in the graph below. Pressure drop data are valid at the start of the service run with a clear water.

Figure 1: Pressure Drop

LIMITS OF USE

AMBERLITE IRN97 H resin is suitable for industrial uses. For 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.