

PRODUCT DATA SHEET

**AMBERLITE™ IRN150**  
**Nuclear Grade Mixed Bed Resin**

AMBERLITE IRN150 resin is a mixture of uniform particle size gel polystyrene cation and anion exchange resins. AMBERLITE IRN150 resin as supplied contains a stoichiometric equivalent of the strongly acidic cation and the strongly basic anion

exchange resins. It is supplied in the fully regenerated H<sup>+</sup>/OH<sup>-</sup> form. The resin combines the properties of high capacity and excellent physical strength.

PROPERTIES

|  |                                   |                                    |
|--|-----------------------------------|------------------------------------|
| Physical form _____                            | Spherical beads                   |                                    |
| Matrix _____                                   | Styrene divinylbenzene copolymer  |                                    |
| Shipping weight _____                          | 690 g/L                           |                                    |
| Functional group _____                         | <b>Cation resin</b>               | <b>Anion resin</b>                 |
| Ionic form as shipped _____                    | Sulphonic acid                    | Trimethylammonium                  |
| Total exchange capacity <sup>[2]</sup> _____   | H <sup>+</sup>                    | OH <sup>-</sup>                    |
| Moisture holding capacity <sup>[1]</sup> _____ | ≥ 1.90 eq/L (H <sup>+</sup> form) | ≥ 1.20 eq/L (OH <sup>-</sup> form) |
| Particle size                                  | 49 to 55 % (H <sup>+</sup> form)  | 54 to 60 % (OH <sup>-</sup> form)  |
| Harmonic mean size <sup>[1]</sup> _____        | 0.600 to 0.700 mm                 | 0.580 to 0.680 mm                  |
| Uniformity coefficient <sup>[1]</sup> _____    | ≤ 1.2 (for each component)        |                                    |
| < 0.300 mm <sup>[1]</sup> _____                | 0.2 % max                         |                                    |
| Whole beads _____                              | ≥ 95 %                            |                                    |
| Breaking weight (average) _____                | ≥ 350 g/bed                       |                                    |
| > 200 g/bed _____                              | ≥ 95 %                            |                                    |
| Ionic conversion <sup>[1]</sup> _____          | ≥ 99 % H <sup>+</sup>             | ≥ 95 % OH <sup>-</sup>             |
| CO <sub>3</sub> <sup>=</sup> _____             | -                                 | ≤ 5 %                              |
| Cl <sup>-</sup> _____                          | -                                 | ≤ 0.1 %                            |
| SO <sub>4</sub> <sup>=</sup> _____             | -                                 | ≤ 0.1 %                            |

<sup>[1]</sup> Contractual value

<sup>[2]</sup> Average value calculated from statistical quality control

Test methods and SQC charts are available on request.

SUGGESTED OPERATING CONDITIONS

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

\* 1 BV (Bed Volume) = 1 m<sup>3</sup> solution per m<sup>3</sup> resin

## PURITY

AMBERLITE IRN150 resin is designated as a nuclear grade resin and is manufactured using special processing procedures. These procedures, combined with a Rohm and Haas process to reduce the chloride content of the anion component, produce material of the ultimate purity and yield a product meeting the exacting demands of the nuclear industry.

AMBERLITE IRN150 resin is recommended in any non-regenerable mixed bed application where reliable production of the highest quality water is required and where the "as supplied" resin must have an absolute minimum of ionic and non-ionic contamination.

| Purity                | Cation<br>mg/kg dry resin | Anion |
|-----------------------|---------------------------|-------|
| Al                    | ≤ 50                      | ≤ 50  |
| Ca                    | ≤ 50                      | ≤ 50  |
| Co                    | ≤ 30                      | ≤ 30  |
| Cu                    | ≤ 10                      | ≤ 10  |
| Fe                    | ≤ 50                      | ≤ 50  |
| Hg                    | ≤ 20                      | ≤ 20  |
| K                     | ≤ 40                      | ≤ 40  |
| Mg                    | ≤ 50                      | ≤ 50  |
| Na                    | ≤ 50                      | ≤ 20  |
| Pb                    | ≤ 10                      | ≤ 10  |
| Total Cl              | ≤ 500                     |       |
| SiO <sub>2</sub>      | ≤ 100                     |       |
| Total SO <sub>4</sub> | ≤ 600                     |       |

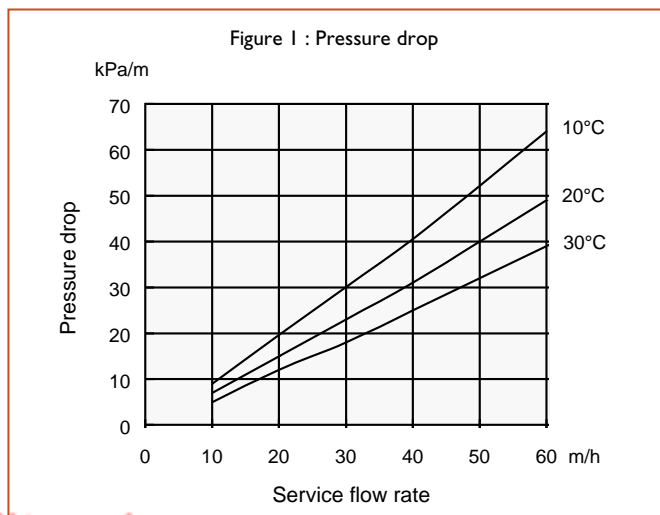
## APPLICATIONS

The purity and physical stability of AMBERLITE IRN150 resin provides unsurpassed performance in nuclear applications such as decontamination of primary water. AMBERLITE IRN150 resin can also be used for a variety of radwaste applications.

## HYDRAULIC CHARACTERISTICS

### Pressure drop

The approximate pressure drop for each meter of bed depth of AMBERLITE IRN150 resin in normal downflow operation at various temperatures and flow rates is shown in the graph below.



## RESIN HANDLING

To maintain the high purity of nuclear grade resins, deionized water should be used for all resin handling. Contact of the resin with air should also be minimized to avoid CO<sub>2</sub> pickup and subsequent loss of capacity of the anion resin.



AMBERJET is a trademark of Rohm and Haas Company and its affiliates, Philadelphia, U.S.A.

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.

Rohm and Haas Company makes no warranties either expressed or implied as to the accuracy or appropriateness of these data and expressly excludes any liability upon Rohm and Haas arising out of its use. We recommend that the prospective users determine for themselves the suitability of Rohm and Haas materials and suggestions for any use prior to their adoption. Suggestions for uses of our products of the inclusion of descriptive material from patents and the citation of specific patents in this publication should not be understood as recommending the use of our products in violation of any patent or as permission or license to use any patents of the Rohm and Haas Company and its affiliates. Material Safety Data Sheets outlining the hazards and handling methods for our products are available on request.