

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^+/OH^- 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 _____	Cation resin	Anion resin
Ionic form as shipped _____	Sulphonic acid	Trimethylammonium
Total exchange capacity ^[2] _____	H^+	OH^-
Moisture holding capacity ^[1] _____	≥ 1.90 eq/L (H^+ form)	≥ 1.20 eq/L (OH^- form)
Particle size	49 to 55 % (H^+ form)	54 to 60 % (OH^- form)
Harmonic mean size ^[1] _____	0.600 to 0.700 mm	0.580 to 0.680 mm
Uniformity coefficient ^[1] _____	≤ 1.2 (for each component)	
< 0.300 mm ^[1] _____	0.2 % max	
Whole beads _____	≥ 95 %	
Breaking weight (average) _____	≥ 350 g/bead	
> 200 g/bead _____	≥ 95 %	
Ionic conversion ^[1] _____	≥ 99 % H^+	≥ 95 % OH^-
$CO_3^{=}$ _____	-	≤ 5 %
Cl^- _____	-	≤ 0.1 %
$SO_4^{=}$ _____	-	≤ 0.1 %

^[1] Contractual value

^[2] 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 m³ solution per m³ 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 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 ₂		≤ 100
Total SO ₄		≤ 600

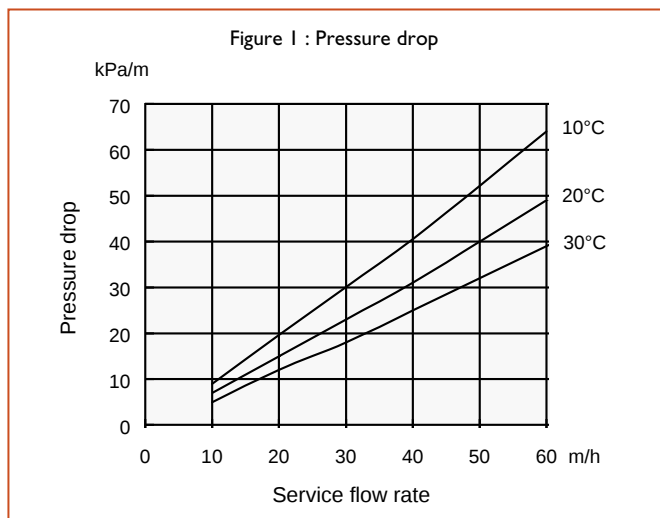
APPLICATIONS

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 CO₂ pickup and subsequent loss of capacity of the anion resin.



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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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