



AMBERLITE® IRN150

Industrial Nuclear Grade Mixed Bed Resin

PRODUCT DATA SHEET

AMBERLITE IRN150 is a mixture of uniform particle size gelular 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 resistance to bead fracture from attrition and osmotic shock.

PHYSICAL CHARACTERISTICS

Physical form _____	Uniform particle size spherical beads
Shipping weight _____	690 g/L
Harmonic mean size _____	Cation : 650 ± 50 µm - Anion : 630 ± 50 µm
Uniformity coefficient _____	≤ 1.2 (for each component)
Particle size ^[1] _____	< 0.300 mm : 0.2 % max
	> 1.180 mm : 2.0 % max
Whole beads _____	95 % minimum
Breaking weight (average) _____	≥ 350 g/bead
> 200 g/bead _____	≥ 95 %

CHEMICAL CHARACTERISTICS

	Cation resin	Anion resin
Matrix _____	Polystyrene DVB gel	Polystyrene DVB gel
Functional groups _____	Sulphonic acid	Trimethylammonium
Ionic form as shipped _____	H ⁺	OH ⁻
Total exchange capacity ^[2] _____	≥ 1.9 eq/L (H ⁺ form)	≥ 1.2 eq/L (OH ⁻ form)
Strong base capacity ^[1] _____	-	≥ 90 %
Moisture holding capacity ^[1] _____	49 -55 % (H ⁺ form)	54 - 60 % (OH ⁻ form)
Ionic conversion ^[1] _____	99 % min H ⁺	95 % min OH ⁻
CO ₃ ⁼ _____	-	5 % max
Cl ⁻ _____	-	0.1 % max
SO ₄ ⁼ _____	-	0.1 % max

^[1] Contractual value

^[2] Average value calculated from statistical quality control
Test methods and SQC charts are available on request.

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 & RECOMMENDED OPERATING CONDITIONS

The purity and physical stability of AMBERLITE IRN150 resin provides unsurpassed performance in nuclear applications such as decontamination of primary water.

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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.

Rohm and Haas Company makes no warranties either expressed or implied as to the accuracy of appropriateness of this 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. Material Safety Data Sheets outlining the hazards and handling methods for our products are available on request.

AMBERLITE IRN150 resin can also be used for a variety of radwaste applications.

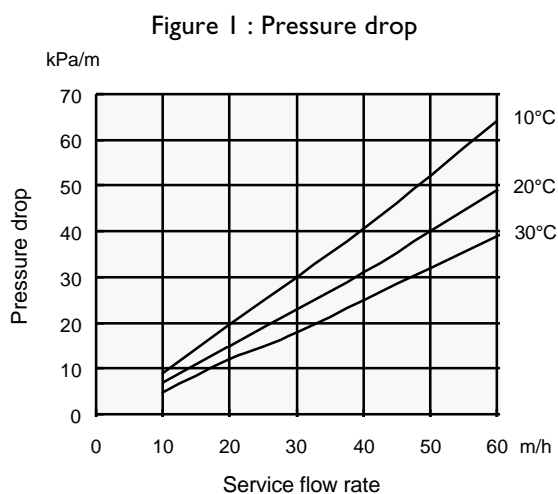
Minimum bed depth _____ 800 mm
 Maximum operating temperature _____ 60 °C
 Service flow rate _____ 8 to 50 BV*/h
 Service velocity _____ 60 m/h maximum

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

HYDRAULIC CHARACTERISTICS

Pressure drop

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



RESIN HANDLING

To retain the high purity standards of nuclear grade resins, deionised water should be used for all resin handling. Contact of the resin with air should also be minimised to avoid CO₂ pickup and subsequent loss of capacity of the anion resin