ROHM AND HAAS

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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	
	Cation resin	**Anion resin**
Functional group	Sulphonic acid	Trimethylammonium
Ionic form as shipped	H^+	OH^-
Total exchange capacity [2]	≥ 1.90 eq/L (H^+ form)	≥ 1.20 eq/L (OH^- form)
Moisture holding capacity [1]	49 to 55 % (H^+ form)	54 to 60 % (OH^- form)
Particle size		
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 m^3 solution per m^3 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	Anion
	mg/kg dry resin	
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

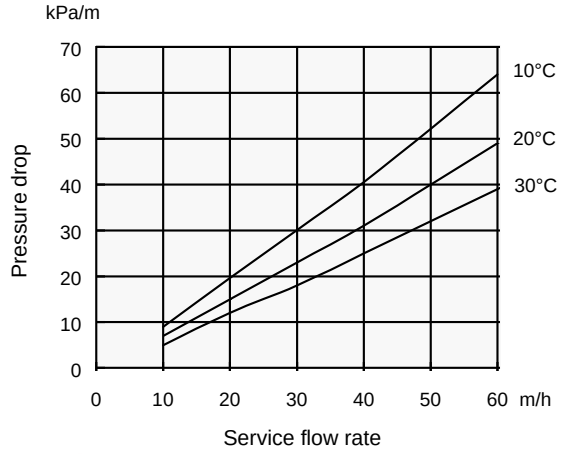
The purity and physical stability of AMBERLITE IRN150 resin provides unsurpassed performance in nuclear applications such as decontamination of primary water. AMBERLITE IRN150 resin can also be used for a variety of radwaste applications.

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.

Figure 1 : Pressure drop



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_2 pickup and subsequent loss of capacity of the anion resin.