AMBERLITE® IRN160

Nuclear Grade Mixed Bed Resin

PRODUCT DATA SHEET

AMBERLITE IRN160 is a fully regenerated nuclear grade mixed bed resin intended for use in *non-regenerable* nuclear systems which demand high effluent purity, high operating capacity, and long resin life. It is supplied as a 1 to 1 equivalent mixture of Amberlite IRN97 H and Amberlite IRN78. Amberlite IRN160 was developed for use in BWR condensate polishers to minimize re-separation of cation and anion components and help eliminate formation of a cation resin layer at the bottom of the service vessels. This reduces the release of sulfate from the bed and helps to lower sulfate levels in the BWR reactor water. The purchase of Amberlite IRN160 as a pre-mixed mixed bed also allows for faster initial rinse-up of resin prior to service, which minimizes rinse waste water volume. Amberlite IRN160 was first introduced to BWR condensate polishing in 1992 and continues to have a record of outstanding performance.

Amberlite IRN160 has also been successfully used in other nuclear applications such as treatment of reactor coolant in PWR primary system CVCS beds, purification of steam generator blowdown, and in the treatment of radioactive waste streams.

PROPERTIES

Matrix	Polystyrene divinylbenzene copolymer
Functional Groups	Sulfonic Acid / Trimethylammonium
Physical Form	Mixture of dark and light amber translucent beads
Chemical Form	1 to 1 equivalent mixture of H^+ and OH^- form resins
Shipping Weight	43 lb/ft^3 (690 g/L)
Retained on 20 mesh (850 µm)	5.0 % maximum
Through 50 mesh (300 µm)	0.1 % maximum
Friability Average	350 g/bead minimum
Friability > 200 g/bead	95% minimum
Na	50 mg/kg dry, maximum
Al	50 mg/kg dry, maximum
Fe	50 mg/kg dry, maximum
Cu	10 mg/kg dry, maximum
Heavy Metals as Pb	10 mg/kg dry, maximum

COMPONENT RESIN PROPERTIES

	Cation resin	**Anion resin**
Total Exchange Capacity	2.0 meq/ml minimum	1.1 meq/ml minimum
Moisture Content	45 to 51%	54 to 60 %
% Regenerated Sites	99 % H, minimum	95 % OH, minimum
% Cl form Sites	-	0.1 %, maximum

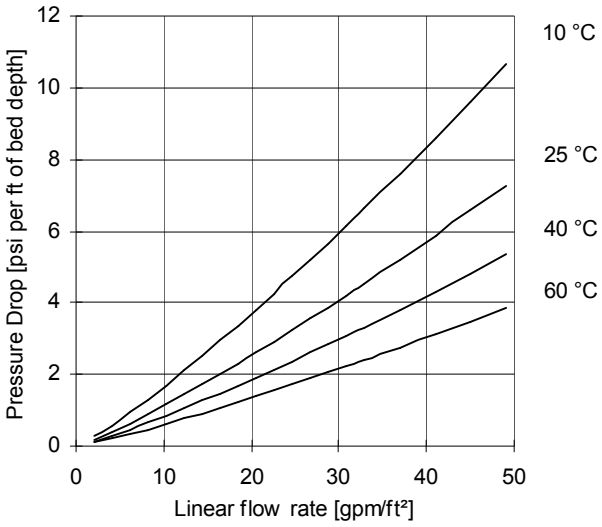
SUGGESTED OPERATING CONDITIONS

Operating Temperature	60 to 140° F (15 to 60 °C)
Minimum Bed Depth	36 inches
Service Flow Rate for Condensate Polishing (LV)	50 gpm/ft^2 maximum
Service Flow Rate Other Applications (SV)	1 to 6 gpm/ft^3 (8 to 50 BV/h)

HYDRAULIC CHARACTERISTICS

The figure shows the pressure drop data for Amberlite IRN160 resin, as a function of service flow rate and water temperature. Pressure drop data are for clean beds which have not accumulated solids during the service run. If the bed accumulates solids, the pressure drop would increase.

Amberlite IRN160 Pressure Drop



LIMITS OF USE

AMBERLITE IRN160 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.

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