



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)

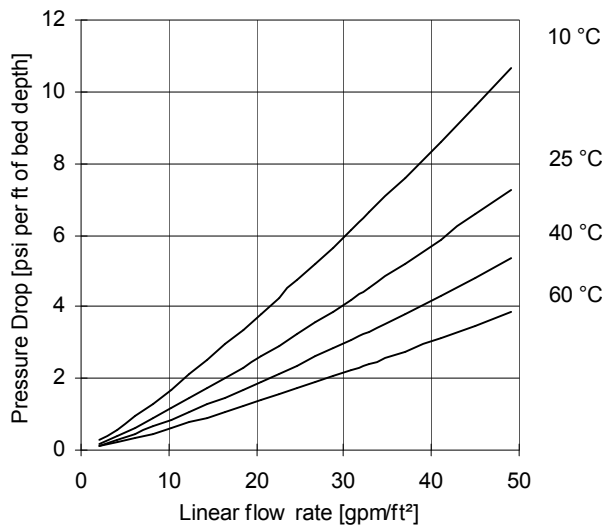
HYDRAULIC CHARACTERISTICS

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.

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.

Amberlite IRN160 Pressure Drop



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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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