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AMBERLITE™ IRN9687

Industrial Grade Lithium Loaded Mixed Bed Resin

Introduction

AMBERLITE™ IRN9687 is a nuclear grade mixedbed resin. Ionically equilibrated, it is a mixture of a strongly acidic cation exchanger with a strongly basic type I anion exchanger, AMBERLITE IRN78. Its cationic component is loaded with lithium 7 at 99.9 % of isotopic purity.

AMBERLITE IRN9687 is characterized by a strong affinity for caesium 137. It is used for boron and lithium regulation in PWR power plants (chemical and volume control system of the reactor).

Properties

Matrix	Polystyrene
Functional groups	Sulphonate, quaternary ammonium
Ionic form as shipped	${}^7\text{Li}^+/\text{OH}^-$
Percentage of regeneration	Cation component: ${}^7\text{Li}^+$ (99 % minimum) Anion component: OH^- (95 % minimum)
Composition in equivalent	Cation ratio
Bulk density	655 to 730 g/L
Particle size	0.4 to 1.0 mm : 80 % minimum < 0.315 mm : 0.2 % max. > 1.25 mm : 3.0 % max.
Maximum operating temperature	60° C (regenerated from)
Chemical stability	Insoluble in water, dilute solution of acids or bases and common solvents

Purity

As with all nuclear grade products, AMBERLITE IRN9687 is manufactured to meet all recognized specifications of the nuclear industry. Its purity specifications meet the following values (expressed in mg/kg dry product) :

	Anion Exchanger mg/kg maximum	Cation Exchanger mg/kg maximum
Fe	100	100
Na	20	60
Cu	30	30
Co	30	30
Al	50	50
Pb	30	30
Hg	20	20

	Anion Exchanger mg/kg maximum
Silica	100
Total sulphate	600
Total chloride	500

The anion exchange resin component is supplied with a minimum of 95% of its exchange sites in the OH- form and a maximum of:

- Ion chloride: 0.2% of the exchange sites
- Ionic sulphate: 0.3% of the exchange sites

Limits of use

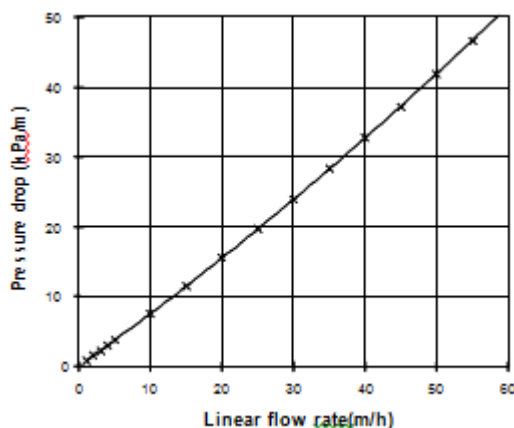
AMBERLITE IRN9687 is suitable for industrial users. For all other specific applications such as pharmaceutical, food processing or potable water applications, it is recommended that all potential users seek advice from Dow Water & Process Solutions in order to determine the best resin choice and optimum operating conditions.

Hydraulic Characteristics

Pressure Drop

Figure 1 shows the pressure drop data for AMBERLITE IRN9687 as a function of service flow rate for water temperature of 20°C.

Pressure drop are value at the start of the service run with a clear water



For more information about DOW™ resins, call the Dow Water & Process Solutions business:

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