

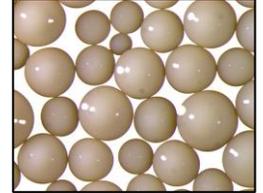


AMBERLITE™ IRN9675 H Ion Exchange Resin

Nuclear-grade, Macroporous, Strong Acid Cation Exchange Resin for Water Treatment Applications in the Nuclear Power Industry

Description

AMBERLITE™ IRN9675 H Ion Exchange Resin is designed specifically for use in nuclear loops where highest resin purity and stability are required, and where the "as supplied" resin must have a minimum of ionic and non-ionic contamination. These high standards of resin purity enable plants to achieve reliable and safe production whilst reducing the need for equipment maintenance and minimizing the impact of unscheduled outages.



AMBERLITE IRN9675 H has a high capacity to remove radioactive colloidal material, especially cobalt, in all nuclear applications. It can operate in short beds at high linear velocity due to the fast kinetics enabled by its macroporous pore structure. Therefore, it is often used as an overlay above a mixed bed or a cation resin.

Applications

- Primary water treatment:
 - Primary coolant purification
 - Treatment of primary coolant blowdown
 - Pre-outage clean-up
- Rad waste treatment and decontamination:
 - Removal of radioactive cations such as ¹³⁷Cs and cobalt isotopes
 - Removal of radioactive colloids

Purity

AMBERLITE™ IRN Ion Exchange Resins are manufactured as nuclear-grade using specific procedures throughout the manufacturing process to keep the inorganic impurities at the lowest possible level. Special treatment procedures are also utilized to remove traces of soluble organic compounds to meet the rigorous demands of the nuclear industry. These high standards of resin purity will help keep nuclear systems free of contaminants and deposits, and prevent increases in radioactivity levels due to activation of impurities in the reactor core. IRN resins are recommended in both non-regenerable and regenerable single bed or mixed bed applications 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.

Historical Reference

AMBERLITE™ IRN9675 H Ion Exchange Resin has previously been sold as DOWEX™ C-75 NG (H) Ion Exchange Resin.

Typical Physical and Chemical Properties**

Physical Properties	
Copolymer	Styrene-divinylbenzene
Matrix	Macroporous
Type	Strong acid cation
Functional Group	Sulfonic acid
Physical Form	White to tan, opaque, spherical beads
Chemical Properties	
Ionic Form as Shipped	H ⁺
Total Exchange Capacity	≥ 1.7 eq/L (H ⁺ form)
Water Retention Capacity	50.0 – 56.0% (H ⁺ form)
Ionic Conversion	
H ⁺	≥ 99%
Particle Size	
Particle Diameter §	600 – 850 µm
Uniformity Coefficient	≤ 1.70
< 300 µm	≤ 0.2%
> 1180 µm	≤ 3.0%
Purity	
Metals, dry basis:	
Na	≤ 50 mg/kg
K	≤ 10 mg/kg
Fe	≤ 50 mg/kg
Cu	≤ 10 mg/kg
Co	≤ 10 mg/kg
Ca	≤ 30 mg/kg
Mg	≤ 50 mg/kg
Al	≤ 50 mg/kg
Heavy Metals (as Pb)	≤ 10 mg/kg
Stability	
Whole Uncracked Beads	≥ 95%
Density	
Shipping Weight	755 g/L

§ For additional particle size information, please refer to the [Particle Size Distribution Cross Reference Chart](#) (Form No. 177-01775).

Suggested Operating Conditions**

Temperature Range (H ⁺ form)	5 – 150°C (41 – 302°F)
pH Range (Stable)	0 – 14

For additional information regarding recommended minimum bed depth, operating conditions, and regeneration conditions for [mixed beds](#) (Form No. 177-03705) or [separate beds](#) (Form No. 177-03729) in water treatment, please refer to our Tech Facts.

Hydraulic Characteristics

Estimated bed expansion of AMBERLITE™ IRN9675 H Ion Exchange Resin as a function of backwash flowrate and temperature is shown in Figure 1.

Estimated pressure drop for AMBERLITE IRN9675 H as a function of service flowrate and temperature is shown in Figure 2. These pressure drop expectations are valid at the start of the service run with clean water and a well-classified bed.

Figure 1: Backwash Expansion

Temperature = 10 – 60°C (50 – 140°F)

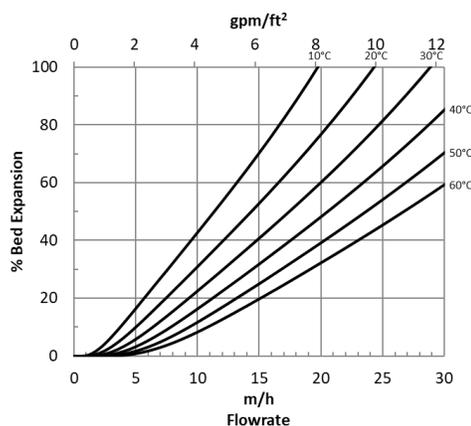
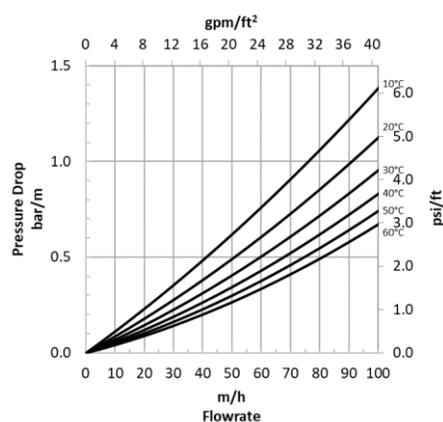


Figure 2: Pressure Drop

Temperature = 10 – 60°C (50 – 140°F)



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For more information, contact our Customer Information Group:

Asia Pacific	+86 21 3851 4988
Europe, Middle East, Africa	+31 115 672626
Latin America	+55 11 5184 8722
North America	1-800-447-4369

www.dowwaterandprocess.com

WARNING: Oxidizing agents such as nitric acid attack organic ion exchange resins under certain conditions. This could lead to anything from slight resin degradation to a violent exothermic reaction (explosion). Before using strong oxidizing agents, consult sources knowledgeable in handling such materials.

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