

AmberLite™ IRA410 Cl Ion Exchange Resin

Gaussian, Gel, Strong Base Anion (Type II) Exchange Resin for Industrial Demineralization Applications

Description

AmberLite™ IRA410 Cl Ion Exchange Resin is a general-purpose demineralization resin with a long-established track record of reliable performance in co-flow regenerated industrial water treatment systems.

Compared to a Type I strong base anion resin, a Type II resin will yield greater operating capacity due to more complete regeneration. It is best-suited to treat water in which silica and carbon dioxide do not exceed 30% of the total anions and the service and caustic regeneration temperature does not consistently exceed 35°C (95°F).

For systems that require low silica in the effluent or that operate at higher temperatures, a Type I strong base anion resin is recommended, such as AmberLite™ IRA402 Cl Ion Exchange Resin.

Applications

- Demineralization, when the treatment goal is:
 - Removal of strong and weak acids
- Dealkalization

System Designs

- Co-current

Typical Properties

Physical Properties	
Copolymer	Styrene-divinylbenzene
Matrix	Gel
Type	Strong base anion, Type II
Functional Group	Dimethylethanolammonium
Physical Form	Pale yellow, translucent, spherical beads
Chemical Properties	
Ionic Form as Shipped	Cl ⁻
Total Exchange Capacity	≥ 1.25 eq/L (Cl ⁻ form)
Water Retention Capacity	45.0 – 51.0% (Cl ⁻ form)
Particle Size §	
Particle Diameter	600 – 750 µm
Uniformity Coefficient	≤ 1.60
< 300 µm	≤ 1.0%
> 1180 µm	≤ 5.0%
Stability	
Swelling	Cl ⁻ → OH ⁻ : 20%
Density	
Particle Density	1.10 g/mL
Shipping Weight	680 g/L

§ For additional particle size information, please refer to the [Particle Size Distribution Cross Reference Chart](#) (Form No. 45-D00954-en).

Suggested Operating Conditions

Temperature Range	
OH ⁻ form	5 – 35°C (41 – 95°F)
Cl ⁻ form	5 – 80°C (41 – 176°F)
pH Range	
Service Cycle	1 – 14
Stable	0 – 14

For additional information regarding recommended minimum bed depth, operating conditions, and regeneration conditions for [separate beds](#) (Form No. 45-D01131-en) in water treatment, please refer to our Tech Fact.

Hydraulic Characteristics

Estimated bed expansion of AmberLite™ IRA410 Cl Ion Exchange Resin as a function of backwash flowrate and temperature is shown in Figure 1.

Estimated pressure drop for AmberLite™ IRA410 Cl 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)

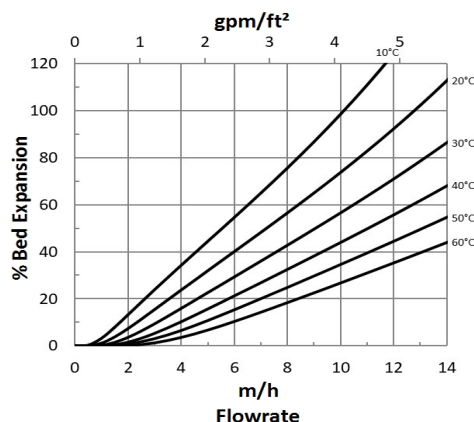
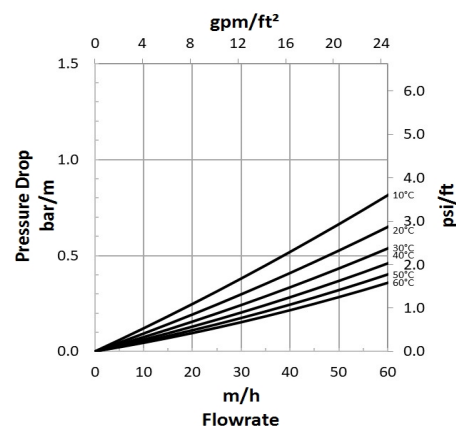


Figure 2: Pressure Drop

Temperature = 10 – 60°C (50 – 140°F)



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Please be aware of the following:

- **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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