



## Product Data Sheet

### 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

|                            |                                           |
|----------------------------|-------------------------------------------|
| <b>Physical Properties</b> |                                           |
| Copolymer                  | Styrene-divinylbenzene                    |
| Matrix                     | Gel                                       |
| Type                       | Strong base anion, Type II                |
| Functional Group           | Dimethylethanolammonium                   |
| Physical Form              | Pale yellow, translucent, spherical beads |
| <b>Chemical Properties</b> |                                           |
| Ionic Form as Shipped      | Cl <sup>-</sup>                           |
| Total Exchange Capacity    | ≥ 1.25 eq/L (Cl <sup>-</sup> form)        |
| Water Retention Capacity   | 45.0 – 51.0% (Cl <sup>-</sup> form)       |
| <b>Particle Size</b> §     |                                           |
| Particle Diameter          | 600 – 750 µm                              |
| Uniformity Coefficient     | ≤ 1.60                                    |
| < 300 µm                   | ≤ 1.0%                                    |
| > 1180 µm                  | ≤ 5.0%                                    |
| <b>Stability</b>           |                                           |
| Swelling                   | Cl <sup>-</sup> → OH <sup>-</sup> : 20%   |
| <b>Density</b>             |                                           |
| 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 <sup>-</sup> form | 5 – 35°C (41 – 95°F)  |
| Cl <sup>-</sup> 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.

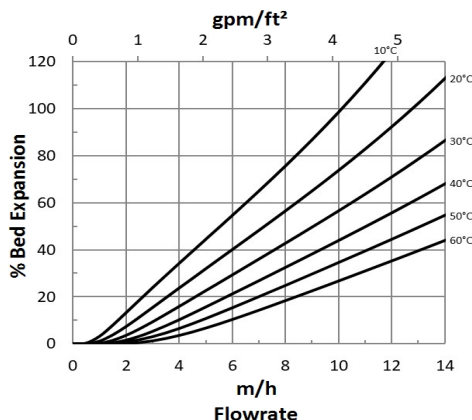
## Hydraulic Characteristics

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.

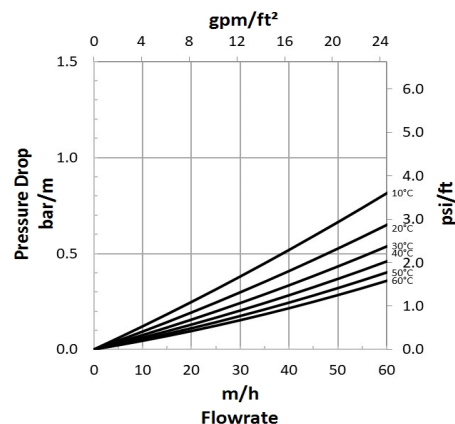
**Figure 1: Backwash Expansion**

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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