



## AMBERLITE™ IRA410 Cl Resin

Industrial Grade Strong Base Anion Exchanger

### Description

AMBERLITE™ IRA410 Cl resin is a type 2 strongly basic anion exchange resin, with a clear gel structure. It is based on crosslinked polystyrene and has a high bead integrity, good regeneration efficiency and excellent rinse performance. It is particularly suited for use in two-column water demineralisation plants (one cation, one anion unit). AMBERLITE IRA410 Cl resin has better regeneration efficiency than type 1 resins, resulting in a higher operating capacity. However, its affinity for silica is lower. Therefore, AMBERLITE IRA410 Cl resin will be mainly used to treat waters with a silica to total anion ratio of less than 30%. It should be regenerated at ambient temperature.

### Typical Physical and Chemical Properties

Physical form	Pale yellow translucent spherical beads
Matrix	Styrene divinylbenzene copolymer
Functional group	Dimethyl ethanol ammonium
Ionic form as shipped	Cl <sup>-</sup>
Total volume capacity	1.25 eq/L (27.4 kgr/ft <sup>3</sup> as CaCO <sub>3</sub> )
Moisture retention capacity	45–51%
Shipping density	680 g/L (42 lbs/ft <sup>3</sup> )
Particle size	
Uniformity coefficient	1.6
Harmonic mean diameter	0.600–0.750 mm
< 0.300 mm	1% max
Reversible swelling	Cl <sup>-</sup> → OH <sup>-</sup> 20%

### Suggested Operating Conditions

Maximum operating temperature	35°C / 95°F
Minimum bed depth	700 mm (2.3 ft)
Service flow rate	5–40 BV*/h (0.62–5 gpm/ft <sup>3</sup> )
Regeneration	
Regenerant	NaOH
Level	40–100% g/L (2.5–6.2 lbs/ft <sup>3</sup> )
Concentration	2–4%
Minimum contact time	30 minutes
Slow rinse	2 BV at regeneration flow rate
Fast rinse	4–8 BV at service flow rate

\*1 BV (Bed Volume) = 1 m<sup>3</sup> solution per m<sup>3</sup> resin or 7.5 gals per ft<sup>3</sup> resin

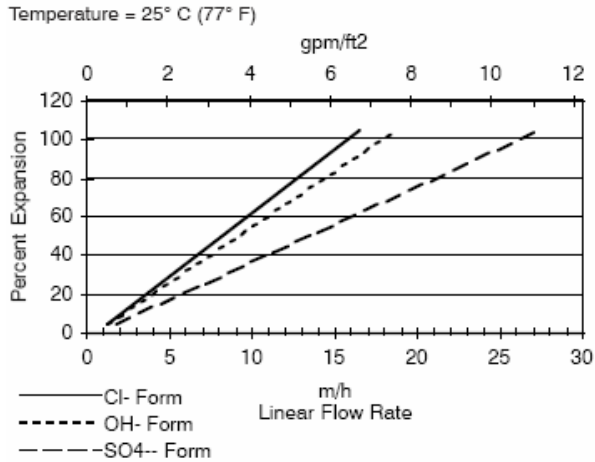
## Packaging

25 liter bags or 7 cubic foot drum

## Hydraulic Characteristics

Figure 1 shows the bed expansion of AMBERLITE™ IRA410 Cl resin as a function of backwash flow rate and water temperature. Figure 2 shows the pressure drop data for AMBERLITE IRA410 Cl resin, as a function of service flow rate and water temperature. Pressure drop data are valid at the start of the service run with clear water and a correctly classified bed.

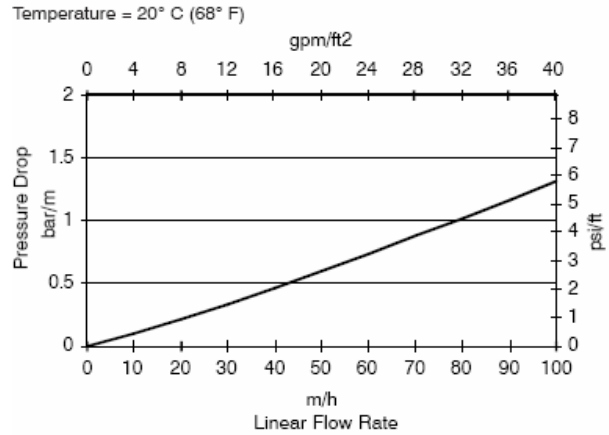
### Figure 1. Backwash Expansion Data



For other temperatures use:

$$F_T = F_{77°F} [1 + 0.008 (T_F - 77)], \text{ where } F \equiv \text{gpm/ft}^2$$
$$F_T = F_{25°C} [1 + 0.008 (1.8T_C - 45)], \text{ where } F \equiv \text{m/h}$$

### Figure 2. Pressure Drop Data



For other temperatures use:

$$P_T = P_{20°C} / (0.026 T_C + 0.48), \text{ where } P \equiv \text{bar/m}$$
$$P_T = P_{68°F} / (0.014 T_F + 0.05), \text{ where } P \equiv \text{psi/ft}$$

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### **DOW™ Ion Exchange Resins** For more information about DOW™ resins, call the Dow Water & Process Solutions business:

North America: 1-800-447-4369  
Latin America: (+55) 11-5188-9222  
Europe: (+32) 3-450-2240  
Pacific: +60 3 7958 3392  
Japan: +813 5460 2100  
China: +86 21 2301 1000  
<http://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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