

PRODUCT DATA SHEET

AMBERLITE™ IRA405 Cl
Industrial Grade Strong Base Anion Exchanger
For Use in Organic Bearing Waters

AMBERLITE IRA405 Cl resin is a type 1 strong base gel anion exchange resin based on a crosslinked polystyrene polymer matrix. Its main application is water demineralization, especially in plants which are known to have organic fouling problems with conventional anion resins. The unique open gel structure of AMBERLITE IRA405 Cl resin allows excellent removal of organic species during the service cycle, protecting the boiler from acidic decomposition products. The open gel structure also allows the release of the loaded organics from the resin during the normal regeneration cycle, which helps prevent AMBERLITE IRA405 Cl resin from fouling.

This combination provides superior rinse performance and silica removal over a longer lifetime than traditional anion exchange resins in organic fouling situations. AMBERLITE IRA405 Cl resin has unusually high capacity for a product of this type, and can be used with hot caustic regeneration whenever required. When used in a primary anion unit or in a mixed bed, AMBERLITE IRA405 Cl resin delivers the same silica leakage and operating capacity characteristics as conventional styrenic strong base resins, while at the same time providing the latest solution to the organic fouling issue.

PROPERTIES

Physical form _____	Yellow translucent spherical beads
Matrix _____	Polystyrene divinylbenzene copolymer
Functional group _____	Quaternary Ammonium
Ionic form as shipped _____	Chloride
Total exchange capacity ^[1] _____	≥ 1.30 eq/L (Cl ⁻ form)
Moisture holding capacity ^[1] _____	54 to 58 % (Cl ⁻ form)
Shipping weight _____	690 g/L
Particle size	
Uniformity coefficient ^[1] _____	≤ 1.4
Harmonic mean size ^[1] _____	0.550 to 0.650 mm
< 0.300 mm ^[1] _____	0.5 % max
Reversible swelling _____	Cl ⁻ → OH ⁻ ≤ 25 %

^[1] Contractual value
Test methods are available on request.

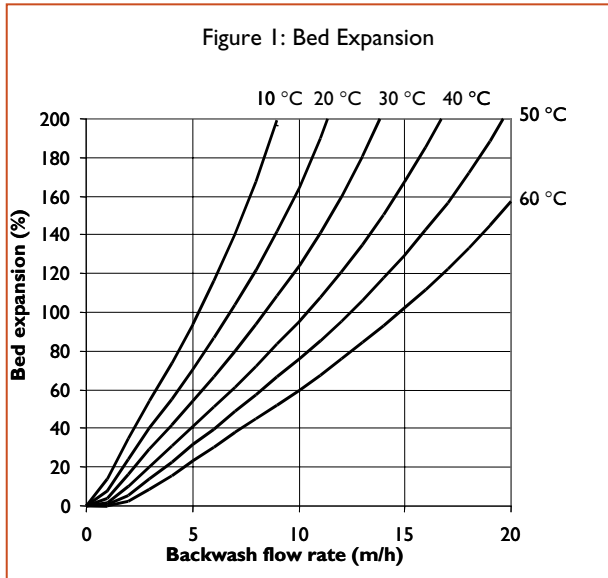
SUGGESTED OPERATING CONDITIONS

Maximum operating temperature _____	60 °C
Minimum bed depth _____	800 mm
Service flow rate _____	5 to 40 BV*/h
Regeneration	
Regenerant _____	NaOH
Level (as 100 % NaOH) _____	40 to 100 g/L
Concentration _____	2 to 4 %
Minimum contact time _____	30 minutes
Slow rinse (caustic displacement) _____	1.5 to 3 BV at regeneration flow rate
Fast rinse _____	3 to 6 BV at service flow rate

* 1 BV (Bed Volume) = 1 m³ solution per m³ resin

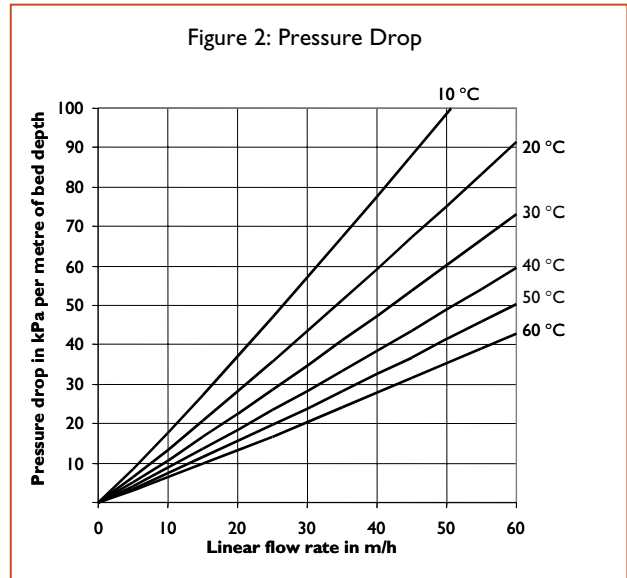
LIMITS OF USE

AMBERLITE IRA405 Cl resin is suitable for industrial uses. For other specific applications such as pharmaceutical, food processing or potable water applications, it is recommended that all potential users seek advice from Rohm and Haas in order to determine the best resin choice and optimum operating conditions.



HYDRAULIC CHARACTERISTICS

Figure 1 shows the bed expansion of AMBERLITE IRA405 Cl resin, as a function of backwash flow rate and water temperature. Figure 2 shows the pressure drop data for AMBERLITE IRA405 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.



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Ion exchange resins and polymeric adsorbents, as produced, contain by-products resulting from the manufacturing process. The user must determine the extent to which organic by-products must be removed for any particular use and establish techniques to assure that the appropriate level of purity is achieved for that use. The user must ensure compliance with all prudent safety standards and regulatory requirements governing the application. Except where specifically otherwise stated, Rohm and Haas Company does not recommend its ion exchange resins or polymeric adsorbents, as supplied, as being suitable or appropriately pure for any particular use. Consult your Rohm and Haas technical representative for further information. Acidic and basic regenerant solutions are corrosive and should be handled in a manner that will prevent eye and skin contact. Nitric acid and other strong oxidising agents can cause explosive type reactions when mixed with Ion Exchange resins. Proper design of process equipment to prevent rapid buildup of pressure is necessary if use of an oxidising agent such as nitric acid is contemplated. Before using strong oxidising agents in contact with Ion Exchange Resins, consult sources knowledgeable in the handling of these materials.

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