



AMBERLITE[®] IRC747

Industrial Grade Chelating Resin

Introduction

AMBERLITE IRC747 is a resin of macroporous structure. Its polystyrenic matrix, crosslinked with DVB, contains aminophosphonic groups. The chemical nature of these groups is such that they form complexes with metal ions.

The operating capacity for Calcium can be 20 % more than, and the capacity for Strontium and Barium as much as double, that for Duolite C467. This brings improved cycle times, especially for brine with higher Sr content.

Properties

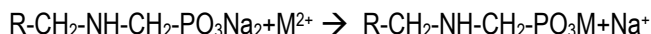
Matrix	Styrene divinylbenzene copolymer
Functional group	-CH ₂ -NH-CH ₂ -PO ₃ Na ₂
Physical form	Beige beads
Ionic form as shipped	Na ⁺
Total exchange capacity	≥ 1.75 eq/L (Na ⁺ form)
Moisture holding capacity	64 to 69 % (Na ⁺ form)
Specific gravity	1.10 to 1.14 (Na ⁺ form)
Shipping weight	755 g/L (47.1 lb/ft ³)
Harmonic mean size	0.520 - 0.660 mm
Uniformity coefficient	≤ 1.8
Fine contents	< 0.300 mm : 2.0% max
Coarse beads	> 1.000 mm : 5.0% max
Maximum reversible swelling	H ⁺ → Na ⁺ : 45 %

Suggested Operating Conditions

Water Treatment	
Maximum operating temperature	80°C (175 °F)
Minimum bed depth	700 mm (28 inches)
Service flow rate	up to 40 BV/h (5 gpm/ft ³)
Regeneration	HCl (1N to 2N)
Conversion to Na ⁺ form	NaOH (1N to 2N)
Operating pH	Function of applications

Performance

Characteristic Reaction



Relative affinity

The relative affinity of this resin for the various cations decreases in the order shown below:
 PB²⁺ > Cu²⁺ > Zn²⁺ > Mg²⁺ > CA²⁺ > Cd²⁺ > Ni²⁺ > Co²⁺ > Sr²⁺ > Ba²⁺

Operating pH Range

The resin can operate in a neutral, acidic or alkaline medium, but since its capacity depends on the pH, we recommend the following minimum pH values.

pH minimum	2	2.5	3	4.5
Cations	Cu ²⁺	Zn ²⁺	Cd ²⁺	Mg ²⁺
	Ph ²⁺		Ca ²⁺	Ni ²⁺
				Co ²⁺

Applications

Brine Purification

AMBERLITE IRC747 is a very efficient resin for the removal of Ca, Mg, and other metals present in trace quantities (a few ppm) in concentrated brine, e.g. chlor-alkali electrolysis.

Zinc separation

Separation of zinc from media in which this metal is present (corrosion preventive products in cooling towers).

Lead separation

Separation of lead from industrial effluents (oil refinery and battery factory wastes, solvents and wastes from the manufacture of paints and printing inks)

Hydraulic Characteristics

Figure 1 shows the bed expansion of AMBERLITE IRC747 as a function of backwash flow rate and temperature.

Limits of use

AMBERLITE IRC747 is suitable for industrial users. For all other specific applications such as pharmaceutical, food processing or potable water applications, it is recommended that all potential users seek advice from Dow Water & Process Solutions in order to determine the best resin choice and optimum operating conditions.

Figure 2 provides the pressure drop profile for AMBERLITE IRC747 in brine.

Figure 1 : % Bed Expansion in Water

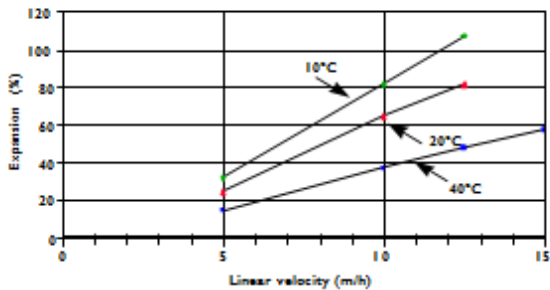
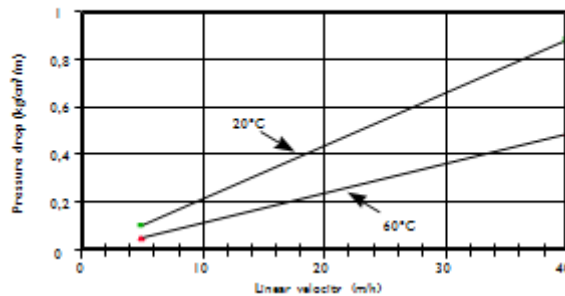


Figure 2 : Pressure Drop in Brine



For more information about DOW™ resins, call the Dow Water & Process Solutions business:

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