

DuPont™ AmberSep™ IRC747 UPS Chelating Resin

Industrial-grade, Uniform Particle Size, Chelant for Chemical Processing

Key Features

- High operating capacity
- Excellent physical stability
- Low pressure drop

Key Applications

- Brine softening for chlor-alkali industry
- Purification of lithium brines
- Zinc separation
- Lead separation from industrial effluents

Typical Properties

Physical Properties	
Copolymer	Styrene-divinylbenzene
Matrix	Macroporous
Type	Chelant
Functional Group	$-\text{CH}_2-\text{NH}-\text{CH}_2-\text{PO}_3-\text{Na}_2$
Physical Form	Beige, hard, opaque, spherical beads

Density	
Shipping Weight	755 g/L
Particle Density	1.10–1.14 g/mL

Chemical Properties	
Ionic Form as Shipped	Na^+
Total Exchange Capacity	$\geq 1.75 \text{ eq/L}$
Water Retention Capacity	64–69%
Swelling	$\text{H}^+ \rightarrow \text{Na}^+ : 45\%$

Particle Size [§]	
Particle Diameter	$550 \pm 50 \mu\text{m}$
Uniformity Coefficient	≤ 1.2

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

Suggested Operating Conditions

Physical Properties	
Maximum Operating Temperature	80°C (180°F) in non-aqueous media
Operating pH Range	Depends on the application
Bed Depth, min.	700 mm (2.3 ft)
Operating Flowrate	Up to 40 BV*/h (5 gpm/ft³)
Regeneration	1–2 N HCl
Conversion to Na+ form	1–4% NaOH at a flowrate of 2–4 BV/h

* 1 BV (Bed Volume) = 1 m³ solution per m³ resin or 7.5 gal per ft³ resin

Hydraulic Characteristics

Estimated bed expansion of DuPont™ AmberSep™ IRC747 UPS chelating resin as a function of backwash flowrate and fluid specific gravity is shown in Figure 1.

Estimated pressure drop for DuPont™ AmberSep™ IRC747 UPS chelating resin as a function of service flowrate at 40°C (104°F) in brine is shown in Figure 2.

Figure 1: Backwash Expansion
Temperature = 5 – 60°C (41 – 140°F)

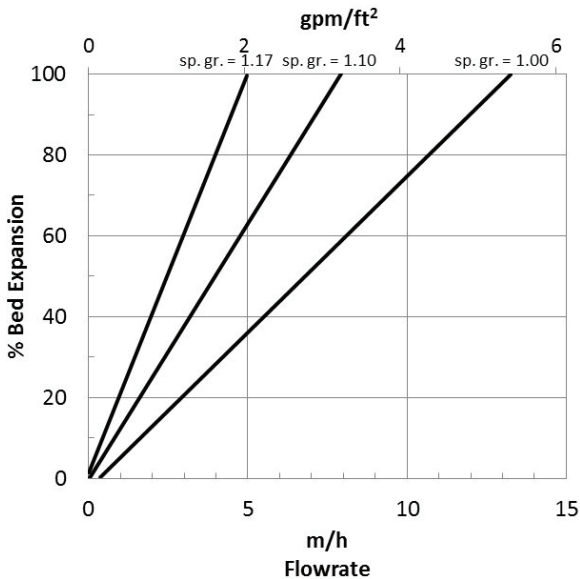
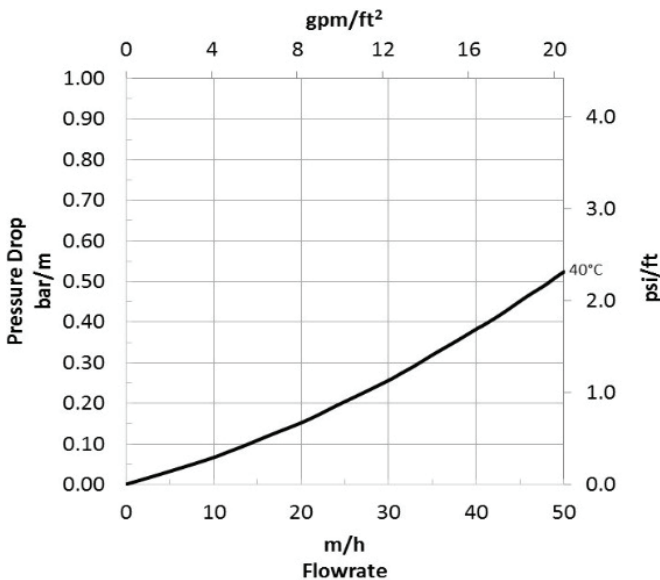


Figure 2: Pressure Drop
Viscosity = 1 – 10 cP



Application Information

DuPont™ AmberSep™ IRC747 UPS chelating resin is a very efficient resin for:

Chlor-alkali Brine Purification

Removal of Ca, Mg, and other metals present in trace quantities (a few ppm) in concentrated brine, e.g., chlor-alkali electrolysis

Lithium-enriched Brine Purification

Removal of Ca, Mg, and other divalent metals present in the refinement of direct lithium extraction brines

Zinc Separation

Separation of zinc from media; for example, in corrosion preventive products in cooling towers

Lead Separation

Separation of lead from industrial effluents, such as waste from oil refineries and battery factories, or solvents and wastes from the manufacture of paints and printing inks

Product Stewardship

DuPont has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with DuPont products—from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

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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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