Product Data Sheet

AmberSep™ GT74 Chelating Resin

Industrial-grade Complexing Resin

Description

AmberSep™ GT74 Chelating Resin is a weakly acidic cation exchange resin with very pronounced selectivity for certain metal ions such as mercury, rhodium, copper, silver, cadmium, and lead.

AmberSep™ GT74 has been developed for the removal of mercury from different solutions and gaseous streams and can be regenerated very efficiently with hydrochloric acid.

AmberSep™ GT74 is insoluble in common solvents and stable over the entire pH range. Oxidizing media should be avoided. The special properties of AmberSep™ GT74 can be useful for problems where removal of metal ions Cu, Ag, Pb, and Cd is desired. Applications may be found in different fields of chemical technology such as wastewater treatment, recovery of solutions and metals in the plating industry, recovery of catalysts and removal of interfering ions in hydrometallurgy.

Applications

- Wastewater treatment
- Flue gas desulfurization blowdown
- Electroplating
- Hydrometallurgy
- Chlor-alkali streams for mercury cell electrodes

Typical Properties

Physical Properties	
Copolymer	Styrene-divinylbenzene
Matrix	Macroporous
Type	Chelant
Functional Group	Thiol
Physical Form	Green-gray, opaque, spherical beads
Chemical Properties	
Ionic Form as Shipped	H^+
Total Exchange Capacity	≥ 1.40 eq/L (SH form)
Water Retention Capacity	38.0 – 46.0% (H^+ form)
Particle Size [§]	
Particle Diameter	450 – 700 µm
Uniformity Coefficient	≤ 1.60
< 425 µm	≤ 12.0%
> 850 µm	≤ 10.0%
Density	
Bulk Density as Shipped	784 g/L

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

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Suggested Operating Conditions

Maximum Operating Temperature	60°C (140°F)
pH Range	0 – 14
Bed Depth, min.	1000 mm (3.1 ft)
Flowrates	
Service	10 BV*/h (1.25 gpm/ft^3)
Backwash	About 12 m/h (5 gpm/ft^2) with water at 20°C (68°F)
Total Rinse Requirement	2 – 3 BV (15 – 22.5 gal/ft^3)
Regenerant	Concentrated HCl

* 1 BV (Bed Volume) = 1 m^3 solution per m^3 resin or 7.5 gal per ft^3 resin

Application Information

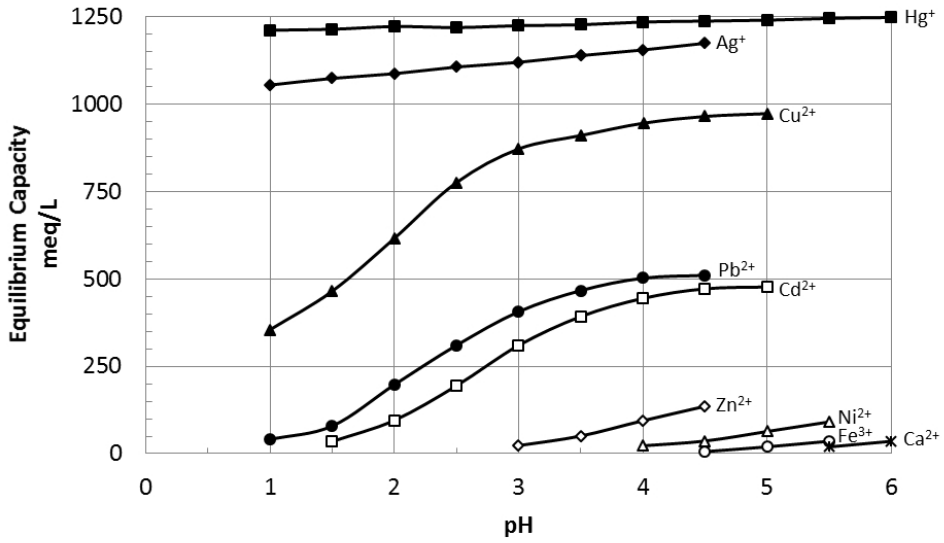
Selectivity Sequence

The selectivity sequence of AmberSep™ GT74 Chelating Resin is:

Hg > Ag > Cu > Pb > Cd > Ni > Co > Fe > Ca > Na

Equilibrium Capacity Data

The high selectivity of AmberSep™ GT74 Chelating Resin for certain metals is shown in the graph below as a function of pH. All data were determined in a normal solution of $NaNO_3$. The resin has a pronounced preference for copper, lead, and cadmium ions, which are removed in considerable quantities, even from solutions containing only 1 meq/L of metal and a large excess of Na^+ ions. The data indicate the possibility of selective separation of these metals.



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Application Information (Cont.)

Example: Removal of lead from wastewater

Influent composition:

Pb^{2+}	6 ppm
Sb^{3+}	0.3 ppm
Na^{+}	100 ppm
pH	2.5

In the experiment, the solution passed through a column of AmberSep™ GT74 Chelating Resin at a flowrate of 15 m/h (6 gpm/ft^2). The effluent contained less than 0.01 ppm Pb. After passage of 700 bed volumes of the solution, the effluent composition was still unchanged.

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.

Customer Notice

DuPont strongly encourages its customers to review both their manufacturing processes and their applications of DuPont products from the standpoint of human health and environmental quality to ensure that DuPont products are not used in ways for which they are not intended or tested. DuPont personnel are available to answer your questions and to provide reasonable technical support. DuPont product literature, including safety data sheets, should be consulted prior to use of DuPont products. Current safety data sheets are available from DuPont.

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.

Have a question? Contact us at:

www.dupont.com/water/contact-us

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