Product Data Sheet

AMBERSEP™ 91419 and AMBERSEP™ 91419 XL Chelating Resins

Gold-Selective Strong Base Anion Exchange Resin for the Recovery of Gold from Cyanidation Leach or Acid Chloride Leach Solutions

Description

Today, most gold is mined by the cyanide leaching, or cyanidation, process. Typically, gold is associated with cyanide-soluble copper minerals that can lead to some operational challenges during the gold extraction process. The advantages of using selective anion exchange resins to sorb the gold from the copper-containing pregnant leach solution are broadly recognized, making ion exchange more cost efficient than other alternative routes like activated carbon.

AMBERSEP™ 91419 and AMBERSEP™ 91419 XL Chelating Resins are gold-selective resins with a t-butylamine functional group. The rapid kinetics of these chelating resins help to improve the recovery of gold, particularly in the presence of carbonaceous preg-robbing ores that otherwise preferentially absorb gold and gold-cyanide complexes. Both resins also feature a very strong mechanical stability, reducing the generation of fines during the processing steps and consequently enhancing the gold recovery efficiency by minimizing Au-loaded resin losses.

AMBERSEP™ 91419 Chelating Resin, with its standard particle size, is designed for systems with fixed or fluidized beds.

AMBERSEP™ 91419 XL Chelating Resin, with its larger uniform particle size, is designed specifically for use in Resin-In-Pulp (RIP) processing, enabling an easy separation of the resin from the pulp. It is also a good choice for Resin-In-Leach (RIL) processes.

Applications

- Gold recovery from cyanide leach
- Separation of gold from PGM streams

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Typical Properties

Physical Properties	
Copolymer	Styrene-divinylbenzene
Matrix	Macroporous
Type	Chelant
Functional Group	Quaternary amine (t-butylamine)
Physical Form	White to tan, hard, opaque, spherical beads

	AMBERSEP™ 91419	AMBERSEP™ 91419 XL
Chemical Properties		
Total Exchange Capacity	0.23 – 0.33 eq/L	0.30 – 0.40 eq/L
Dry Weight Capacity	0.8 – 1.2 meq/g	0.8 – 1.2 meq/g
Water Retention Capacity	49 – 59%	45 – 55%
Particle Size [§]		
Particle Diameter	760 – 1200 µm	822 – 1445 µm
Fine Beads	< 768 µm : ≤ 5%	< 822 µm : ≤ 5%
Coarse Beads	> 1190 µm : ≤ 2%	> 1445 µm : ≤ 2%
Density		
Particle Density	1.08 g/mL	1.08 g/mL
Shipping Weight	670 g/L	670 g/L

[§] For additional particle size information, please refer to the Particle Size Distribution Cross Reference Chart (Form No. 177-01775).

Suggested Operating Conditions

Maximum Operating Temperature	
OH^- form	60°C (140°F)
Cl^- form	100°C (212°F)
pH Range	0 – 14
Bed Depth, min.	800 mm (2.6 ft)
Total Rinse Requirement	2 – 4 BV*
Regenerant	Thiourea, acidified

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

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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