Product Data Sheet

DuPont™ AmberLite™ HPR9100 Cl Ion Exchange Resin

Uniform Particle Size, Macroporous, Strong Base Anion (Type II) Exchange Resin for Industrial Demineralization Applications

Description

DuPont™ AmberLite™ HPR9100 Cl Ion Exchange Resin is a high-quality resin for use in industrial demineralization applications when a balance of operating performance and simple, cost-effective operation is required. The chemical properties and particle size of the resin have been optimized to help yield excellent operating capacity and rinse characteristics, reducing chemical regenerant and rinse water usage while maintaining a superior physical stability.

The macroporous structure of AmberLite™ HPR9100 Cl provides excellent resistance to organic fouling and physical stresses. When operated under challenging conditions, it allows increased resin lifetime in operation compared to a gel Type II resin.

Compared to a Type I strong base anion resin, a Type II resin will yield greater operating capacity due to more complete regeneration. It is best-suited to treat water in which silica and carbon dioxide do not exceed 30% of the total anions and the service and caustic regeneration temperature does not consistently exceed 35°C (95°F).

For systems that require low silica in the effluent or that operate in higher temperatures, a Type I strong base anion resin is recommended, such as:

- AmberLite™ HPR9200 Cl Ion Exchange Resin
- AmberLite™ HPR9000 OH or SO_4 Ion Exchange Resin

Applications

- Demineralization, when the treatment goal is:
  - High organic fouling potential
  - Removal of strong and weak acids
- Dealkalization

System Designs

- Co-current
- Counter-current / Hold-down
- Packed beds

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Typical Properties

Physical Properties	
Copolymer	Styrene-divinylbenzene
Matrix	Macroporous
Type	Strong base anion, Type II
Functional Group	Dimethylethanolammonium
Physical Form	Amber, opaque, spherical beads
Chemical Properties	
Ionic Form as Shipped	Cl^-
Total Exchange Capacity	≥ 1.1 eq/L (Cl^- form)
Water Retention Capacity	48.0 – 58.0% (Cl^- form)
Particle Size [§]	
Particle Diameter	625 ± 50 µm
Uniformity Coefficient	≤ 1.15
< 300 µm	≤ 1.0%
> 850 µm	≤ 1.0%
Stability	
Whole Uncracked Beads	≥ 95%
Swelling	$Cl^- \rightarrow OH^-$: 15%
Density	
Particle Density	1.09 g/mL
Shipping Weight	675 g/L

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

Suggested Operating Conditions

Temperature Range	
OH^- form	5 – 35°C (41 – 95°F)
Cl^- form	5 – 80°C (41 – 176°F)
pH Range	
Service Cycle	1 – 14
Stable	0 – 14

For additional information regarding recommended minimum bed depth, operating conditions, and regeneration conditions for separate beds (Form No. 45-D01131-en) in water treatment, please refer to our Tech Fact.

Hydraulic Characteristics

Estimated bed expansion of DuPont™ AmberLite™ HPR9100 Cl Ion Exchange Resin as a function of backwash flowrate and temperature is shown in Figure 1.

Estimated pressure drop for AmberLite™ HPR9100 Cl as a function of service flowrate and temperature is shown in Figure 2. These pressure drop estimates are valid at the start of the service run with clean water.

Figure 1: Backwash Expansion

Temperature = 10 – 60°C (50 – 140°F)

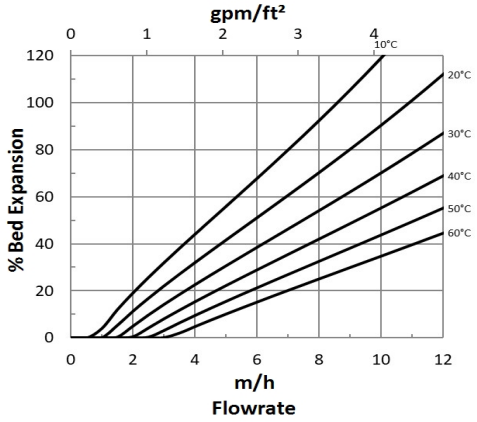
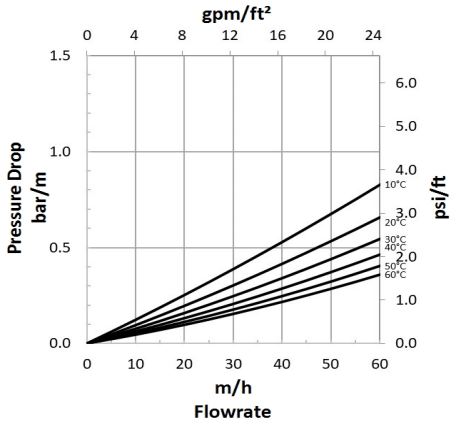


Figure 2: Pressure Drop

Temperature = 10 – 60°C (50 – 140°F)



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.

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Have a question? Contact us at:

www.dupont.com/water/contact-us

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