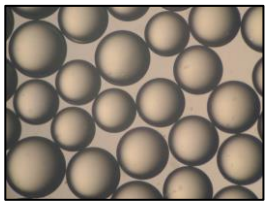
Product Data Sheet

AMBERLITE™ HPR4200 Cl Ion Exchange Resin

Uniform Particle Size, Gel, Strong Base Anion Exchange Resin for Industrial Demineralization Applications

Description



AMBERLITE™ HPR4200 Cl Ion Exchange Resin is a high-quality resin for use in industrial demineralization applications when high performance and cost-effective operation is required. The chemical properties and particle size of the resin have been balanced to combine excellent operating capacity with low pressure drop, while reducing chemical regenerant and rinse water usage.

AMBERLITE HPR4200 Cl is compatible with all system technologies; it has the flexibility to be used in lead single or layered anion bed and in mixed bed polishers, allowing users to inventory only one strong base anion resin for their demineralization needs. In mixed bed applications, the light color of this anion resin is designed to allow easy visual distinction from the dark-colored cation resin following backwash separation.

AMBERLITE HPR4200 Cl is designed for use in single bed or layered bed systems when paired with AMBERLITE™ HPR9600 or AMBERLITE™ HPR9500 Ion Exchange Resins. In mixed bed applications AMBERLITE™ HPR4200 OH Ion Exchange Resin is recommended, but AMBERLITE HPR4200 Cl may be used if chloride-form is preferred by the user.

Resin Pairings

Recommended pairing in industrial demineralization applications:

- AMBERLITE™ HPR1200 H Ion Exchange Resin (gel) – for mixed bed
- AMBERLITE™ HPR1300 H Ion Exchange Resin (gel) – for mixed bed
- AMBERLITE™ HPR9500 Ion Exchange Resin (macroporous) – for layered bed
- AMBERLITE™ HPR9600 Ion Exchange Resin (macroporous) – for layered bed

Applications

- Demineralization
  - Ideally when treating water with:
    - High percentage of silica
  - When the treatment goal is:
    - Removal of strong and weak acids
    - Lowest silica leakage
- Mixed bed polishing

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System Designs

Compatible with all system technologies and bed configurations:

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

Historical Reference

AMBERLITE™ HPR4200 Cl Ion Exchange Resin has previously been sold as DOWEX MARATHON™ 4200 Cl Ion Exchange Resin.

Typical Physical and Chemical Properties**

Physical Properties	
Copolymer	Styrene-divinylbenzene
Matrix	Gel
Type	Strong base anion, Type I
Functional Group	Trimethylammonium
Physical Form	Yellow, translucent, spherical beads
Chemical Properties	
Ionic Form as Shipped	Cl^-
Total Exchange Capacity	≥ 1.30 eq/L (Cl^- form)
Water Retention Capacity	49.0 – 55.0% (Cl^- form)
Particle Size	
Particle Diameter §	650 ± 50 µm
Uniformity Coefficient	≤ 1.25
< 300 µm	≤ 0.3%
> 850 µm	≤ 5.0%
Stability	
Whole Uncracked Beads	≥ 90%
Swelling	$Cl^- \rightarrow OH^-$: 20%
Density	
Particle Density	1.07 g/mL
Shipping Weight	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**

Temperature Range	
OH^- form ‡	5 – 60°C (41 – 140°F)
Cl^- form	5 – 100°C (41 – 212°F)
pH Range	
Service Cycle	1 – 14
Stable	0 – 14

‡ Operating at elevated temperatures, for example above 60 – 70°C (140 – 158°F), may impact resin life. Contact our technical representative for details.

For additional information regarding recommended minimum bed depth, operating conditions, and regeneration conditions for mixed beds (Form No. 177-03705) or separate beds (Form No. 177-03729) in water treatment, please refer to our Tech Facts.

Hydraulic Characteristics

Estimated bed expansion of AMBERLITE™ HPR4200 Cl Ion Exchange Resin as a function of backwash flowrate and temperature is shown in Figure 1.

Estimated pressure drop for AMBERLITE HPR4200 Cl as a function of service flowrate and temperature is shown in Figure 2. These pressure drop expectations are valid at the start of the service run with clean water.

Figure 1: Backwash Expansion

Temperature = 10 – 60°C (50 – 140°F)

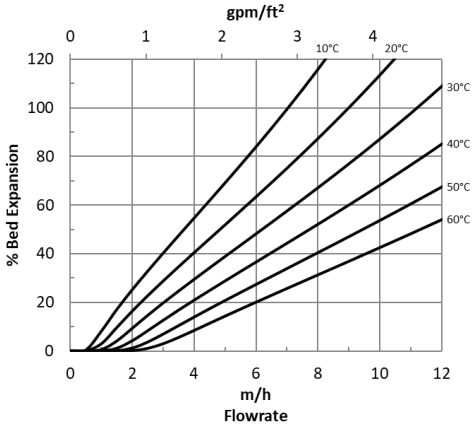
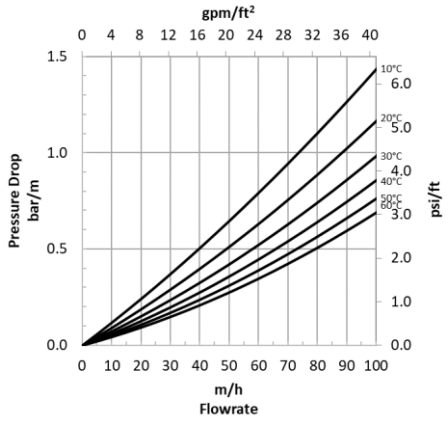


Figure 2: Pressure Drop

Temperature = 10 – 60°C (50 – 140°F)



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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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