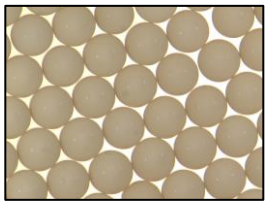
Product Data Sheet

AMBERLITE™ HPR9600 Ion Exchange Resin

Uniform Particle Size, Macroporous, Weak Base Anion Exchange Resin for Industrial Demineralization Applications

Description



AMBERLITE™ HPR9600 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 optimized to help yield excellent operating capacity and rinse characteristics, while reducing chemical regenerant and water usage.

Weak base anion resins are well-suited for use with strong base anion resins to improve overall efficiency and throughput of a demineralization system. It effectively removes mineral acids and organics, reducing the ionic load on the strong base anion resin and also protecting it from organic fouling. The weak base anion resin increases a system's overall capacity to remove organics.

AMBERLITE HPR9600 combines excellent physical and thermal stability with high kinetics, yielding good operating capacity even in low-temperature operations. The macroporous structure allows for easy release of natural organic molecules providing excellent organic fouling resistance.

AMBERLITE HPR9600 is designed for use in single bed or layered bed systems when paired with AMBERLITE™ HPR4200 Cl or OH Ion Exchange Resin.

Applications

- Demineralization, ideally when treating water with:
  - High organic fouling potential
  - High percentage of mineral acidity (FMA)
- Partial demineralization when weak acid removal is not required

System Designs

Compatible with all system technologies and bed configurations:

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

Historical Reference

AMBERLITE™ HPR9600 Ion Exchange Resin has previously been sold as DOWEX MARATHON™ 9600 Ion Exchange Resin.

Form No. 177-03799, Rev. 0
May 2018

Typical Physical and Chemical Properties**

Physical Properties	
Copolymer	Styrene-divinylbenzene
Matrix	Macroporous
Type	Weak base anion
Functional Group	Tertiary amine
Physical Form	Cream, opaque, spherical beads
Chemical Properties	
Ionic Form as Shipped	Free base (FB)
Total Exchange Capacity	≥ 1.3 eq/L (FB form)
Water Retention Capacity	59.0 – 65.0% (FB form)
Particle Size	
Particle Diameter §	550 ± 50 µm
Uniformity Coefficient	≤ 1.1
< 300 µm	≤ 0.2%
Stability	
Whole Uncracked Beads	≥ 95%
Swelling	FB → HCl : 15%
Density	
Particle Density	1.05 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 (FB form)	5 – 60°C (41 – 140°F)
pH Range	
Service Cycle	0 – 6
Stable	0 – 14

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

Hydraulic Characteristics

Estimated bed expansion of AMBERLITE™ HPR9600 Ion Exchange Resin as a function of backwash flowrate and temperature is shown in Figure 1.

Estimated pressure drop for AMBERLITE HPR9600 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)

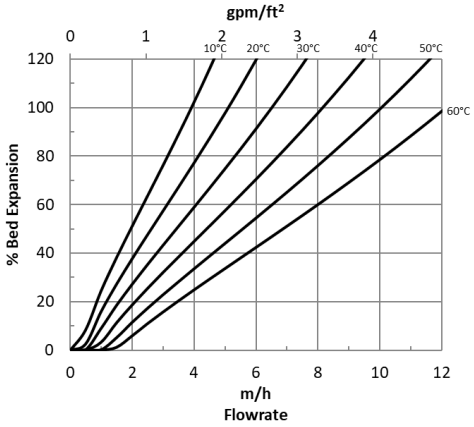
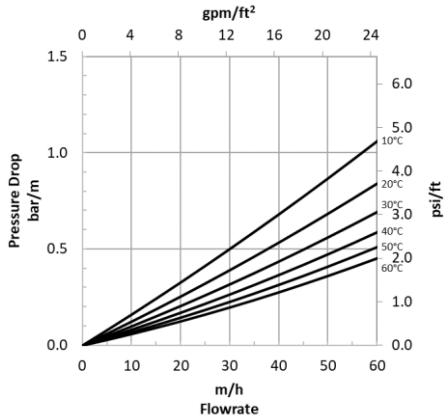


Figure 2: Pressure Drop

Temperature = 10 – 60°C (50 – 140°F)



Product Stewardship

Dow 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 Dow products—from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

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

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.

NOTICE: No freedom from infringement of any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other government enactments. The product shown in this literature may not be available for sale and/or available in all geographies where Dow is represented. The claims made may not have been approved for use in all countries. Dow assumes no obligation or liability for the information in this document. References to "Dow" or the "Company" mean the Dow legal entity selling the products to Customer unless otherwise expressly noted. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

**All information set forth herein is for informational purposes only. This information is general information and may differ from that based on actual conditions. Please note that physical properties may vary depending on certain conditions and while operating conditions stated in this document are intended to lengthen product lifespan and/or improve product performance, it will ultimately depend on actual circumstances and is in no event a guarantee of achieving any specific results. Nothing in this document should be treated as a warranty by Dow.

Form No. 177-03799, Rev. 0
May 2018