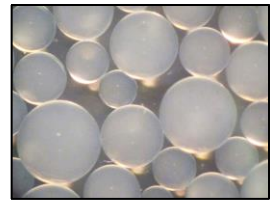
Product Data Sheet

AMBERLITE™ HPR7000 Ion Exchange Resin

Acrylic, Gel, Weak Base Anion Exchange Resin for Industrial Demineralization Applications

Description



AMBERLITE™ HPR7000 Ion Exchange Resin is a high-quality resin for use in industrial demineralization applications when high performance and cost-effective operation is required. This resin offers an improved rinse profile compared to other acrylic weak base anion resins. The chemical properties and particle size of the resin have been balanced to combine good operating capacity with low pressure drop, 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. Acrylic weak base anion resins effectively remove mineral acids as well as carbon dioxide 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 HPR7000 has exceptional physical stability and organic fouling resistance. The hydrophilic acrylic structure provides unique chemical and physical properties enabling the resin to be operated under continuous high load of natural organic compounds when temperatures do not consistently exceed 35°C (95°F).

Applications

- Demineralization, ideally when treating water with:
  - High organic fouling potential
  - High percentage of mineral acidity (FMA)
  - Relatively high remaining carbon dioxide content
  - System layouts without a degasifier

System Designs

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

Historical Reference

AMBERLITE™ HPR7000 Ion Exchange Resin has previously been sold as AMBERLITE™ IRA70RF Ion Exchange Resin.

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May 2018

Typical Physical and Chemical Properties**

Physical Properties	
Copolymer	Crosslinked acrylic
Matrix	Gel
Type	Weak base anion
Functional Group	Tertiary amine
Physical Form	White, translucent, spherical beads
Chemical Properties	
Ionic Form as Shipped	Free base (FB)
Total Exchange Capacity	≥ 1.45 eq/L (FB form)
Water Retention Capacity	58.0 – 62.0% (FB form)
Particle Size ‡	
Particle Diameter §	700 – 900 µm
Uniformity Coefficient	≤ 1.70
< 300 µm	≤ 0.2%
> 1180 µm	≤ 15.0%
Stability	
Whole Uncracked Beads	≥ 95%
Swelling	FB → Cl^- ≤ 10%
Density	
Particle Density	1.07 g/mL
Shipping Weight	655 g/L

‡ Particle size distribution is tailored for packed bed operation.
§ 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 – 40°C (41 – 104°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™ HPR7000 Ion Exchange Resin as a function of backwash flowrate and temperature is shown in Figure 1.

Estimated pressure drop for AMBERLITE HPR7000 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 and a well-classified bed.

Figure 1: Backwash Expansion

Temperature = 10 – 60°C (50 – 140°F)

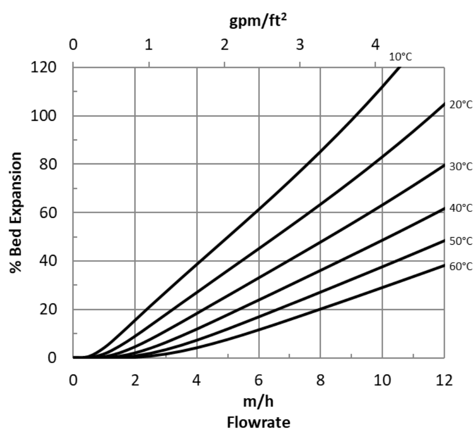
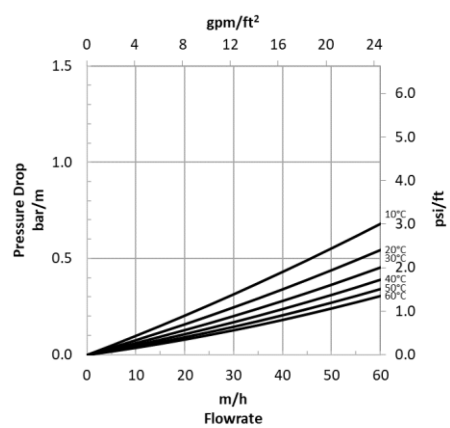


Figure 2: Pressure Drop

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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