

## AmberLite™ HPR9700 Ion Exchange Resin

Macroporous, Weak Base Anion Exchange Resin for Industrial Demineralization Applications

### Description

AmberLite™ HPR9700 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 a 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. 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™ HPR9700 has excellent physical and thermal stability. The macroporous structure allows for easy release of natural organic molecules providing excellent organic fouling resistance.

### 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

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

### Historical Reference

AmberLite™ HPR9700 Ion Exchange Resin has previously been sold as AmberLite™ IRA96RF Ion Exchange Resin.

## Typical Properties

|                            |                                    |
|----------------------------|------------------------------------|
| <b>Physical Properties</b> |                                    |
| Copolymer                  | Styrene-divinylbenzene             |
| Matrix                     | Macroporous                        |
| Type                       | Weak base anion                    |
| Functional Group           | Tertiary amine                     |
| Physical Form              | Off-white, opaque, spherical beads |
| <b>Chemical Properties</b> |                                    |
| 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)             |
| <b>Particle Size</b> §     |                                    |
| Particle Diameter          | 630 – 900 µm                       |
| Uniformity Coefficient     | ≤ 1.3                              |
| < 300 µm                   | ≤ 0.2%                             |
| > 1180 µm                  | ≤ 1.0%                             |
| <b>Stability</b>           |                                    |
| Whole Uncracked Beads      | ≥ 95%                              |
| Swelling                   | FB → HCl : 15%                     |
| <b>Density</b>             |                                    |
| 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. 45-D00954-en).

## 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. 45-D01131-en) in water treatment, please refer to our Tech Fact.

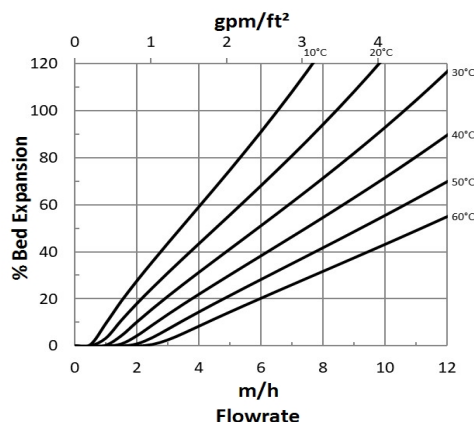
## Hydraulic Characteristics

Estimated bed expansion of AmberLite™ HPR9700 Ion Exchange Resin as a function of backwash flowrate and temperature is shown in Figure 1.

Estimated pressure drop for AmberLite™ HPR9700 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.

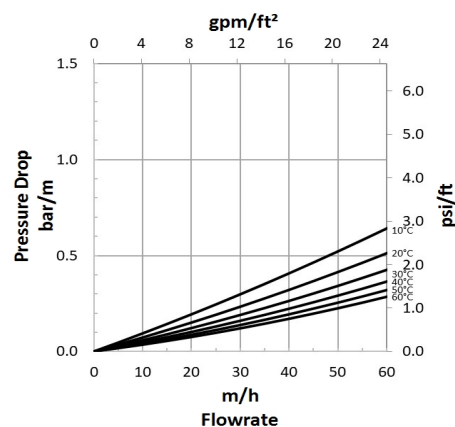
**Figure 1: Backwash Expansion**

Temperature = 10 – 60°C (50 – 140°F)



**Figure 2: Pressure Drop**

Temperature = 10 – 60°C (50 – 140°F)



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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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