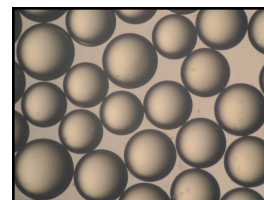


## AmberLite™ HPR4200 OH Ion Exchange Resin

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

### Description

AmberLite™ HPR4200 OH Ion Exchange Resin is a high-quality resin for use in industrial demineralization applications when high performance, high purity water, 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 OH 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 OH offers a quick start-up in a single bed or a mixed bed or when paired with weak base anion AmberLite™ HPR9500 Ion Exchange Resin in layered bed systems. It can also be paired with weak base anion AmberLite™ HPR9600 Ion Exchange Resin.

### 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

### 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### Historical Reference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 OH Ion Exchange Resin has previously been sold as DOWEX MARATHON™ 4200 OH Ion Exchange Resin.

## Typical Properties

|                            |                                         |
|----------------------------|-----------------------------------------|
| <b>Physical Properties</b> |                                         |
| Copolymer                  | Styrene-divinylbenzene                  |
| Matrix                     | Gel                                     |
| Type                       | Strong base anion, Type I               |
| Functional Group           | Trimethylammonium                       |
| Physical Form              | Yellow, translucent, spherical beads    |
| <b>Chemical Properties</b> |                                         |
| Ionic Form as Shipped      | OH <sup>-</sup>                         |
| Total Exchange Capacity    | ≥ 1.00 eq/L (OH <sup>-</sup> form)      |
| Water Retention Capacity   | 60.0 – 66.0% (OH <sup>-</sup> form)     |
| Ionic Conversion           |                                         |
| OH <sup>-</sup>            | ≥ 95%                                   |
| <b>Particle Size</b> §     |                                         |
| Particle Diameter          | 730 ± 50 µm                             |
| Uniformity Coefficient     | ≤ 1.25                                  |
| < 300 µm                   | ≤ 0.3%                                  |
| > 850 µm                   | ≤ 10.0%                                 |
| <b>Stability</b>           |                                         |
| Whole Uncracked Beads      | ≥ 90%                                   |
| Swelling                   | Cl <sup>-</sup> → OH <sup>-</sup> : 20% |
| <b>Density</b>             |                                         |
| Particle Density           | 1.06 g/mL                               |
| Shipping Weight            | 655 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

|                          |                        |
|--------------------------|------------------------|
| <b>Temperature Range</b> |                        |
| OH <sup>-</sup> form ‡   | 5 – 60°C (41 – 140°F)  |
| Cl <sup>-</sup> form     | 5 – 100°C (41 – 212°F) |
| <b>pH Range</b>          |                        |
| 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. 45-D01127-en) or [separate beds](#) (Form No. 45-D01131-en) in water treatment, please refer to our Tech Facts.

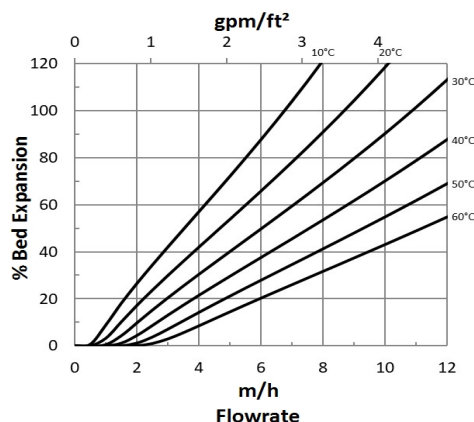
## Hydraulic Characteristics

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

Estimated pressure drop for AmberLite™ HPR4200 OH 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.

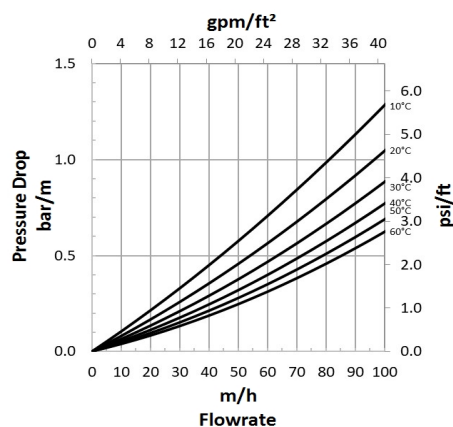
**Figure 1: Backwash Expansion**

Temperature = 10 – 60°C (50 – 140°F)



**Figure 2: Pressure Drop**

Temperature = 10 – 60°C (50 – 140°F)



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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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