



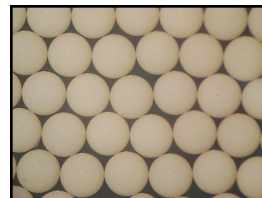
Product Data Sheet

AmberLite™ HPR2900 Na Ion Exchange Resin

Uniform Particle Size, Macroporous, Strong Acid Cation Exchange Resin for Industrial Softening Applications

Description

AmberLite™ HPR2900 Na Ion Exchange Resin is a robust, high-quality resin for use in industrial softening applications when a combination of exceptional physical stability, simple and reliable operation, and long resin life is required.



Its high degree of crosslinking provides exceptional stability, which gives it great resistance to chemical oxidation and to mechanical, thermal, or osmotic stress. The properties of this macroporous resin have been designed for optimal kinetics.

AmberLite™ HPR2900 Na is recommended for hot process softeners, sodium-cycle or amine-cycle condensate treatment, and other systems involving appreciable oxidative potential or high temperatures.

AmberLite™ HPR2900 Na is available for demineralization applications when the sodium-form is preferred by the user.

Applications

- Industrial softening, ideally when treating water with:
 - High oxidant level
 - High temperature on the cation resin
- Sodium-cycle or amine-cycle condensate treatment
- Hot process softening
- Demineralization (when the sodium-form is preferred by the user)

System Designs

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

Historical Reference

AmberLite™ HPR2900 Na Ion Exchange Resin has previously been sold as DOWEX MARATHON™ MSC Na Ion Exchange Resin.

Typical Properties

Physical Properties	
Copolymer	Styrene-divinylbenzene
Matrix	Macroporous
Type	Strong acid cation
Functional Group	Sulfonic acid
Physical Form	White, opaque, spherical beads
Chemical Properties	
Ionic Form as Shipped	Na ⁺
Total Exchange Capacity	≥ 1.8 eq/L (Na ⁺ form)
Water Retention Capacity	46.0 – 52.0% (Na ⁺ form)
Particle Size §	
Particle Diameter	550 ± 50 µm
Uniformity Coefficient	≤ 1.10
< 300 µm	≤ 0.3%
> 850 µm	≤ 3.0%
Stability	
Whole Uncracked Beads	≥ 95%
Swelling	Ca ²⁺ → Na ⁺ : 3% Na ⁺ → H ⁺ : 4%
Density	
Particle Density	1.28 g/mL
Shipping Weight	785 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 (Na ⁺ form)	5 – 150°C (41 – 302°F)
pH Range	
Service Cycle	1 – 14
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™ HPR2900 Na Ion Exchange Resin as a function of backwash flowrate and temperature is shown in Figure 1.

Estimated pressure drop for AmberLite™ HPR2900 Na 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)

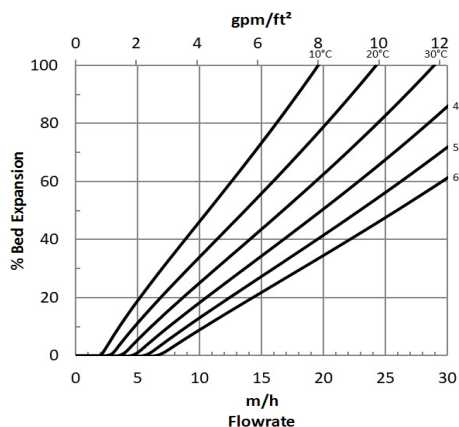
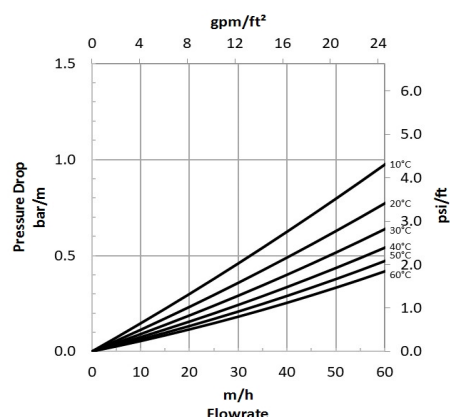


Figure 2: Pressure Drop

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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