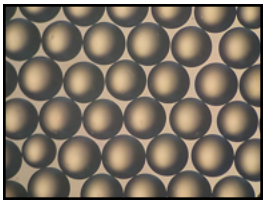
Product Data Sheet

DuPont™ AmberLite™ HPR550 OH Ion Exchange Resin

Uniform Particle Size, Gel, Strong Base Anion Exchange Resin for Condensate Polishing and Mixed Bed Demineralization Applications for the Power Industry

Description



DuPont™ AmberLite™ HPR550 OH Ion Exchange Resin is a premium-quality, high-capacity resin designed specifically for use in nuclear condensate polishing mixed beds when highest resin purity and water quality are required.

This resin provides exceptional bead integrity and rapid exchange kinetics due to its small average particle size, making it ideally suited to the high flowrate demands commonly encountered in power plant condensate polishing systems. The bead size uniformity and a distinguishable light color is tailored to complement the larger, denser, cationic, gel AmberLite™ HPR650 H Ion Exchange Resin. The color distinction between this pair of resins allows easy visual confirmation of separation following backwash. Together, these resins offer exceptional separation in mixed beds, which combined with excellent water quality and resin purity, has made them known throughout the industry as a premium mixed bed pairing.

Resin Pairings

Recommended pairing:

- AmberLite™ HPR650 H Ion Exchange Resin (gel)

Additional options:

- AmberLite™ HPR1600 H Ion Exchange Resin (gel)
- AmberLite™ HPR2000 H Ion Exchange Resin (macroporous) – in external regeneration systems

Applications

- Mixed bed condensate polishing in PWR nuclear power plants
- Mixed bed condensate polishing in fossil power plants
- Mixed bed polishing in industrial demineralization
- Demineralization
  - Ideally when treating water with:
    - High percentage of silica
  - When the treatment goal is:
    - Removal of strong and weak acids
    - Lowest silica leakage
  - Single bed industrial demineralization requiring high water purity

Historical Reference

AmberLite™ HPR550 OH Ion Exchange Resin has previously been sold as DOWEX MONOSPHERE™ 550A (OH) Ion Exchange Resin.

Form No. 45-D01191-en, Rev. 2
February 2023

Typical Properties

Physical Properties	
Copolymer	Styrene-divinylbenzene
Matrix	Gel
Type	Strong base anion
Functional Group	Trimethylammonium
Physical Form	White to yellow, translucent, spherical beads
Chemical Properties	
Ionic Form as Shipped	OH^-
Total Exchange Capacity	≥ 1.1 eq/L (OH^- form)
Water Retention Capacity	55.0 – 65.0% (OH^- form)
Ionic Conversion	
OH^-	≥ 95%
CO_3^{2-}	≤ 5%
Cl^-	≤ 0.5%
Particle Size [§]	
Particle Diameter	590 ± 50 µm
Uniformity Coefficient	≤ 1.10
< 300 µm	≤ 0.5%
> 850 µm	≤ 1.0%
Purity	
Metals, dry basis:	
Na	≤ 50 mg/kg
K	≤ 50 mg/kg
Fe	≤ 50 mg/kg
Cu	≤ 10 mg/kg
Ca	≤ 50 mg/kg
Mg	≤ 50 mg/kg
Al	≤ 50 mg/kg
Heavy Metals (as Pb)	≤ 10 mg/kg
Stability	
Whole Uncracked Beads	≥ 95%
Friability:	
Average	≥ 350 g/bead
> 200 g/bead	≥ 95%
Swelling	$Cl^- \rightarrow OH^-$ ≤ 25%
Density	
Particle Density	1.08 g/mL
Shipping Weight	660 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 (OH^- form) [‡]	5 – 100°C (41 – 212°F)
pH Range (Stable)	0 – 14

[‡] Operating at elevated temperatures, for example above 60 – 70°C (140 – 158°F), may impact the purity of the loop and 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 DuPont™ AmberLite™ HPR550 OH Ion Exchange Resin as a function of backwash flowrate and temperature is shown in Figure 1.

Estimated pressure drop for AmberLite™ HPR550 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)

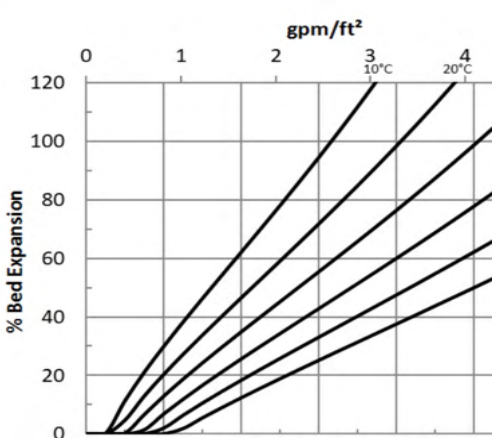
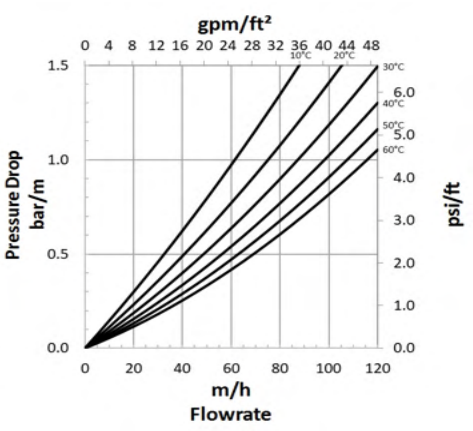


Figure 2: Pressure Drop

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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Have a question? Contact us at:

www.dupont.com/water/contact-us

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