

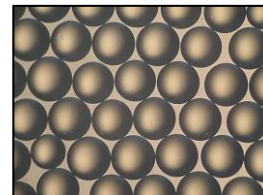


AMBERLITE™ HPR550 OH Ion Exchange Resin

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

Description

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Historical Reference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.

Typical Physical and Chemical 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 ⁻ → 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. 177-01775).

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. 177-03705) or [separate beds](#) (Form No. 177-03729) in water treatment, please refer to our Tech Facts.

Hydraulic Characteristics

Estimated bed expansion of 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)

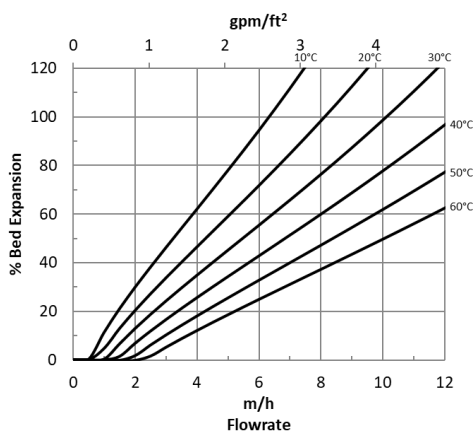
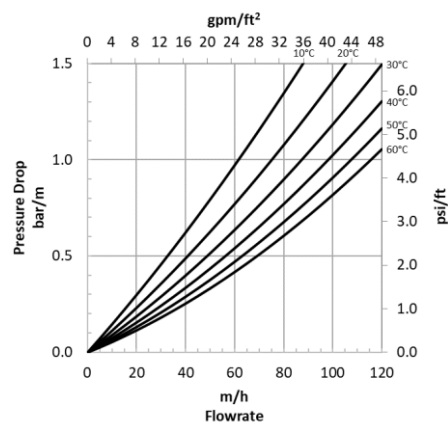


Figure 2: Pressure Drop

Temperature = 10 – 60°C (50 – 140°F)



Product Stewardship

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products—from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

LENNTECH

info@lenntech.com Tel. +31-152-610-900

www.lenntech.com Fax. +31-152-616-289

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.

NOTICE: No freedom from infringement of any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other government enactments. The product shown in this literature may not be available for sale and/or available in all geographies where Dow is represented. The claims made may not have been approved for use in all countries. Dow assumes no obligation or liability for the information in this document. References to "Dow" or the "Company" mean the Dow legal entity selling the products to Customer unless otherwise expressly noted. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

"All information set forth herein is for informational purposes only. This information is general information and may differ from that based on actual conditions. Please note that physical properties may vary depending on certain conditions and while operating conditions stated in this document are intended to lengthen product lifespan and/or improve product performance, it will ultimately depend on actual circumstances and is in no event a guarantee of achieving any specific results. Nothing in this document should be treated as a warranty by Dow.

