



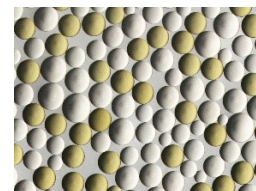
Product Data Sheet

DuPont™ AmberTec™ UP6060 H/OH Ion Exchange Resin

Non-Separable, Uniform Particle Size, Mixed Bed Ion Exchange Resin for Ultrapure Water Production

Description

DuPont™ AmberTec™ UP6060 H/OH Ion Exchange Resin is a non-separable, ultrahigh-end ion exchange resin mixed bed for final polishing applications in ultrapure water (UPW) systems. This pre-mixed resin product is composed of an equivalent mixture of high-capacity, fully regenerated strong acid and strong base gel-type ion exchange resins on a 1:1 equivalent basis.



AmberTec™ UP6060 H/OH is specifically designed for use in non-regenerable final polishing mixed beds in UPW systems in the high-end semiconductor industry and similar demanding applications which require the highest purity. It has leading performance with extraordinary lower leakage of all ionic species, silica, boron, total organic carbon (TOC), and sub-micron particles. Delta TOC is less than 1ppb after 2-hour UPW rinse, and metals concentration is expected to be lowered to 0.1ppt or less.

Applications

- UPW systems with higher requirement on TOC, metal and start up time

Typical Properties

	Cation Resin	Anion Resin
Physical Properties		
Copolymer	Styrene-divinylbenzene	Styrene-divinylbenzene
Matrix	Gel	Gel
Type	Strong acid cation	Strong base anion
Functional Group	Sulfonic acid	Trimethylammonium
Physical Form	Dark amber, translucent, spherical beads	White to yellow, translucent, spherical beads
Ionic Ratio	1:1	1:1
Chemical Properties		
Ionic Form as Shipped	H ⁺	OH ⁻
Total Exchange Capacity	≥ 2.10 eq/L (H ⁺ form)	≥ 1.00 eq/L (OH ⁻ form)
Water Retention Capacity	45.0 – 51.0% (H ⁺ form)	60.0 – 70.0% (OH ⁻ form)
Ionic Conversion		
H ⁺	≥ 99%	
OH ⁻		≥ 95.0%
CO ₃ ²⁻		≤ 5.0%
Cl ⁻		≤ 0.5%
Particle Size §		
Particle Diameter	650 ± 50 µm	630 ± 50 µm
Uniformity Coefficient	≤ 1.20	≤ 1.30
< 300 µm	≤ 0.1%	≤ 1.0%
> 850 µm	≤ 10.0%	
> 1180 µm	≤ 1.0%	≤ 0.5%
AmberTec™ UP6060 H/OH		
Ultrapure Water Performance		
Resistivity at 10-min UPW Rinse		> 18.1 MΩ·cm ‡
Resistivity at 10-min Salt Challenge		> 17.8 MΩ·cm ‡
ΔTOC at 2h00 Rinse		≤ 1 ppb C
Density		
Shipping Weight		700 g/L

§ For additional particle size information, please refer to the [Particle Size Distribution Cross Reference Chart](#) (Form No. 45-D00954-en).

‡ Based on 18.2-MΩ·cm feedwater

Suggested Operating Conditions

Temperature Range †	15 – 25°C (59 – 77°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.

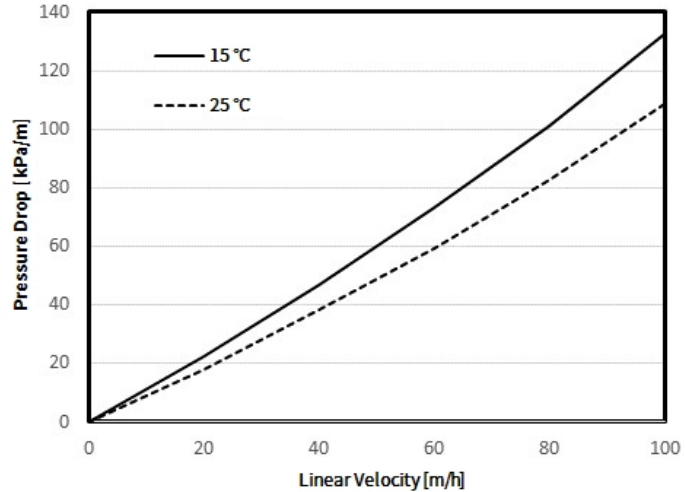
For additional information regarding recommended minimum bed depth, and operating conditions for [mixed beds](#) (Form No. 45-D01127-en), please refer to our Tech Facts.

Hydraulic Characteristics

Estimated pressure drop for DuPont™ AmberTec™ UP6060 H/OH Ion Exchange Resin as a function of service flowrate and temperature is shown in Figure 1. These pressure drop expectations are valid at the start of the service run with clean water.

Figure 1: Pressure Drop

Temperature = 10 – 60°C (50 – 140°F)

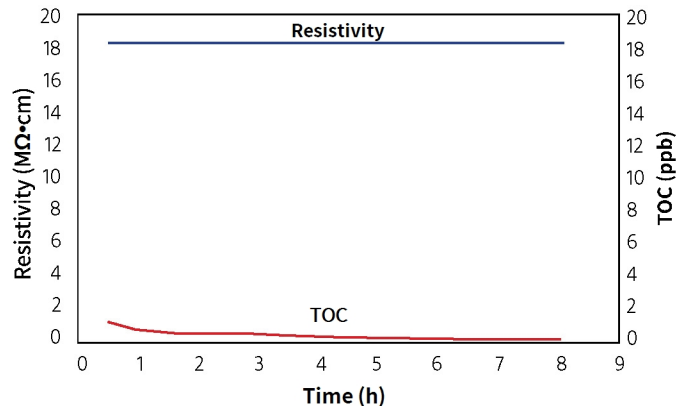


Quality Assurance

AmberTec™ UP6060 H/OH Ion Exchange Resin is tested by DuPont for resistivity, total organic carbon (TOC), and kinetic performance. This ensures that all batches of AmberTec™ UP6060 H/OH will meet stringent ultrapure water (UPW) performance requirements on these most critical parameters. DuPont Water Solutions will fully support the quality and performance of AmberTec™ UP6060 H/OH in UPW applications to assure full customer satisfaction with the product as delivered.

Typical rinse curves for resistivity and total organic carbon (TOC) as a function of rinse time based on our quality control procedure for AmberTec™ UP6060 H/OH are shown in Figure 2.

Figure 2: Resistivity and TOC Rinse Performance



Product Stewardship

DuPont 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 DuPont products—from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

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

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.

Have a question? Contact us at:

www.dupont.com/water/contact-us

All information set forth herein is for informational purposes only. This information is general information and may differ from that based on actual conditions. 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 DuPont is represented. The claims made may not have been approved for use in all countries. 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. DuPont assumes no obligation or liability for the information in this document. References to "DuPont" or the "Company" mean the DuPont 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. No freedom from infringement of any patent or trademark owned by DuPont or others is to be inferred.

© 2023 DuPont. DuPont™, the DuPont Oval Logo, and all trademarks and service marks denoted with ™, SM or ® are owned by affiliates of DuPont de Nemours Inc., unless otherwise noted.

