

**AmberTec™ UP7530 Chelating Resin**

Semiconductor-grade, Uniform Particle Size, Boron-selective Resin

Description

AmberTec™ UP7530 Chelating Resin is a unique ion exchange resin specifically designed using uniform particle size technology to remove boron for the highest-purity water treatment applications, as those typically required in the microelectronics industry.

The presence of boron compounds, even in very small concentration can create issues for ultrapure water (UPW) systems. AmberTec™ UP7530 has high selectivity for boric acid due to its unique active group. The borate ion makes a very stable complex with the active group while other anions do not react, allowing borate to be removed and held very tightly in the presence of other anions.

AmberTec™ UP7530 has extraordinarily low TOC and high resistivity which enable much shorter rinse-down time, which is critical for ultrapure water (UPW) application resulting in both water and time savings. The high boron selectivity combined with uniform particle size brings higher operating exchange capacity than standard boron removal resins. AmberTec™ UP7530 can bring more flexibility to OEMs and end-users on the process design when stringent boron concentration is required.

Applications

- Selective boron removal

Typical Properties**Physical Properties**

Copolymer	Styrene-divinylbenzene
Matrix	Macroporous
Type	Chelant
Functional Group	N-methylglucamine
Physical Form	Off-white, opaque, spherical beads

Chemical Properties

Ionic Form as Shipped	Free base (FB)
Total Exchange Capacity	≥ 0.7 eq/L
Water Retention Capacity	51 – 59%

Particle Size[§]

Particle Diameter	490 – 590 µm
Uniformity Coefficient	≤ 1.1
< 300 µm	≤ 1%
> 850 µm	≤ 3%

Ultrapure Water Performance

Resistivity, 24 h	≥ 15 MΩ·cm
ΔTOC, 24 h	≤ 5 ppb

Density

Shipping Weight	660 g/L
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[§] For additional particle size information, please refer to the [Particle Size Distribution Cross Reference Chart](#) (Form No. 45-D00954-en).

Suggested Operating Conditions

Recommended Operating Temperature	15 – 25°C (59 – 77°F)
Recommended Service Flowrate	40 – 60 BV*/h

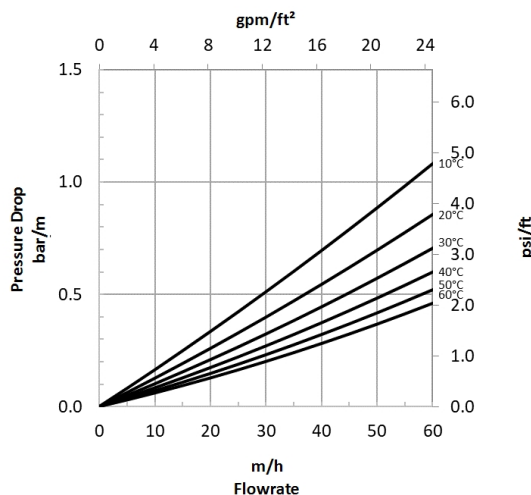
* 1 BV (Bed Volume) = 1 m³ solution per m³ resin or 7.5 gal per ft³ resin

Hydraulic Characteristics

Pressure drop data for AmberTec™ UP7530 Chelating Resin in water as a function of service flowrate is shown in Figure 1. These pressure drop expectations are valid for clean beds which have not been contaminated with suspended solids during the service run; if the bed accumulates solids, the pressure drop will increase.

Figure 1: Pressure Drop

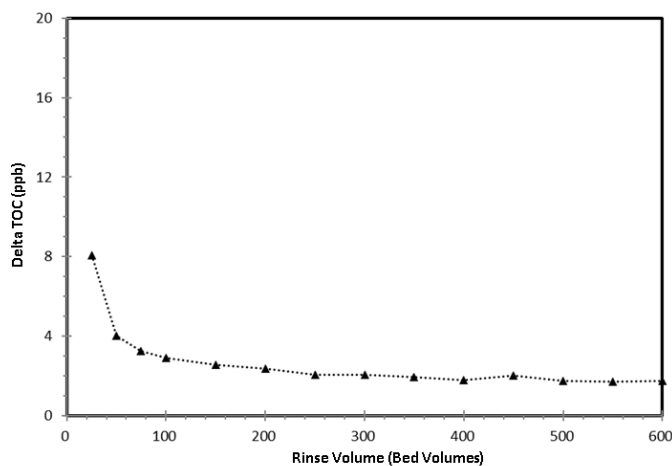
Temperature = 10 – 60°C (50 – 140°F)



UPW Rinse Properties

AmberTec™ UP Ion Exchange Resins are especially processed and controlled in Quality to ensure the purest treated water quality for semiconductors applications. A typical rinse-down curve for TOC as a function of rinse volume (in bed volumes) based on our quality control procedure for AmberTec™ UP7530 resin is shown in Figure 2.

Figure 2: TOC Rinse-down



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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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