



Tel: +44 (0) 1706 869777  
E-mail: [sales@desal.co.uk](mailto:sales@desal.co.uk)  
Web: [www.desal.co.uk](http://www.desal.co.uk)

## AMBERJET™ UP1400 Semiconductor Grade Cation Exchange Resin

### Introduction

AMBERJET UP1400 resin is a uniform particle size, gel type, strongly acidic, cation exchange resin developed specifically for use in producing ultrapure water for the semiconductor industry. It is intended for use in regenerable primary or polishing mixed beds, and it is sold in the fully regenerated hydrogen form to insure minimum impurity leakage. AMBERJET UP1400 resin is designed to be paired with AMBERJET UP4000 anion exchange resin for mixed bed applications.

AMBERJET UP1400 resin can also be used as the cation exchange resin component of a non-regenerable polishing mixed bed to achieve the lowest possible leakage of ionic species, silica, TOC, and sub-micron particles. For full information on the application of AMBERJET UP1400 resin in regenerable mixed beds see our Applications Guidelines for Regenerable Mixed Beds in High Purity Water (IE-614EDS).

### Properties

Physical Form	Dark amber translucent spherical beads
Matrix	Polystyrene divinylbenzene copolymer
Functional group	Sulfonic acid
Ionic form as shipped	Hydrogen
Total exchange capacity	≥ 2.00 eq/L (H <sup>+</sup> form)
Moisture holding capacity	45 to 51 % (H <sup>+</sup> form)
Shipping weight	817 g/L (51 lb/ft <sup>3</sup> )
Particle Size	
Uniformity coefficient	≤ 1.2
Harmonic mean size	0.60 to 0.70 mm < 0.500 mm 1 % max

### Suggested Operating Conditions

Water Treatment	
Service Flow Rate (as a mixed bed)	20 to 40 BV*/h (2.5 to 5 gpm/ft <sup>3</sup> )
Regeneration	
Regenerant	HCl
Level (100% basis)	80 to 160 g/L (5 to 10 lbs/ft <sup>3</sup> )
Concentration	4 to 6 %
Minimum contact time	30 minutes
Slow rinse (at regeneration flow rate)	1 to 2 BV (8 to 15 gal/ft <sup>3</sup> )
Fast rinse	4 to 8 BV (30 to 60 gal/ft <sup>3</sup> )

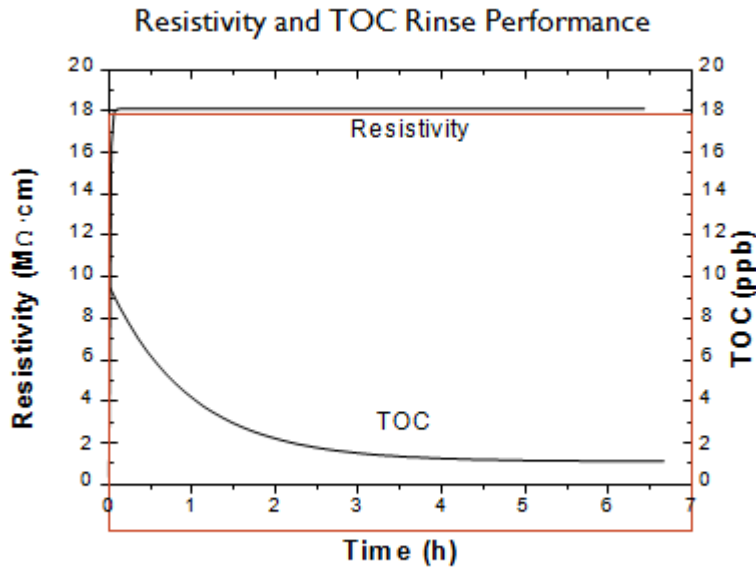
\* 1 BV (Bed Volume) = 1 m3 solution per m3 resin

### Quality assurance

AMBERJET UP1400 resin is QC tested by Dow Chemical for resistivity, totally organic carbon, and kinetic performance in a mixed bed with AMBERJET UP4000 resin. This insures that all batches of AMBERJET UP400 resin will meet stringent UPW performance requirements on these most critical parameters.

Dow Water & Process Solutions will fully support the quality and performance of AMBERJET

UP1400 resin and AMBERJET UP4000 resin in UPW applications in order to assure full customer satisfaction that the delivered product is of the highest quality. Typical TOC and resistivity rinse curves based on our quality control procedure for AMBERJET UP1400 resin are shown below.



**For more information about DOW™ resins, call the Dow Water & Process Solutions business:**

North America: 1-800-447-4369  
 Latin America: (+55) 11-5188-9222  
 Europe: +800-3-694-6367  
 Italy: +800-783-825  
 South Africa: +0800 99 5078  
 Pacific: +8007776 7776  
 China: +400 889-0789  
<http://www.dowwaterandprocess.com>

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