

AMBERJET™ UP4000 Semi-Conductor Grade Anion Exchange Resin

Description

AMBERJET UP4000 resin is a uniform particle size, gel type, strongly basic, anion 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 hydroxide form to insure minimum impurity leakage. AMBERJET UP4000 resin is designed to be paired with AMBERJET UP1400 anion exchange resin for mixed bed applications.

AMBERJET UP4000 resin can also be used as the anion 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 UP4000 resin in regenerable mixed beds see Applications Guidelines for Regenerable Mixed Beds in High Purity Water (IE-614EDS).

Typical Properties

These properties are typical but do not constitute specifications.

Physical form	Yellow translucent spherical beads
Matrix	Polystyrene divinylbenzene copolymer
Functional group	Quaternary ammonium
Ionic form, as shipped	Hydroxide
Total exchange capacity ^[1]	≥ 1.10 eq/L (OH ⁻ form)
Moisture holding capacity ^[1]	54 to 60% (OH ⁻ form)
Shipping weight	689 g/L (43 lb/ft ³)
Particle size	
Uniformity coefficient	≤ 1.2
Harmonic mean size	0.580 to 0.680 mm
Fines content ^[1]	< 0.425 mm : 0.5% maximum

^[1] Contractual value

Test methods are available on request.

Suggested Operating Conditions

Maximum Operating Temperature	60°C	(140°F)
Service Flow Rate (as a mixed bed)	20 to 40 BV*/h	(2.5 to 5 gpm/ft ³)
Regeneration		
Regenerant	NaOH	
Level (100% basis)	90 to 190 g/L	(6 to 12 lbs/ft ³)
Concentration	4 to 5%	
Maximum regeneration temperature	60°C	(140°F)
Minimum contact time	30 minutes	
Slow Rinse (at regeneration flow rate)	1 to 2 BV	(8 to 15 gal/ft ³)
Fast Rinse	4 to 8 BV	(30 to 60 gal/ft ³)

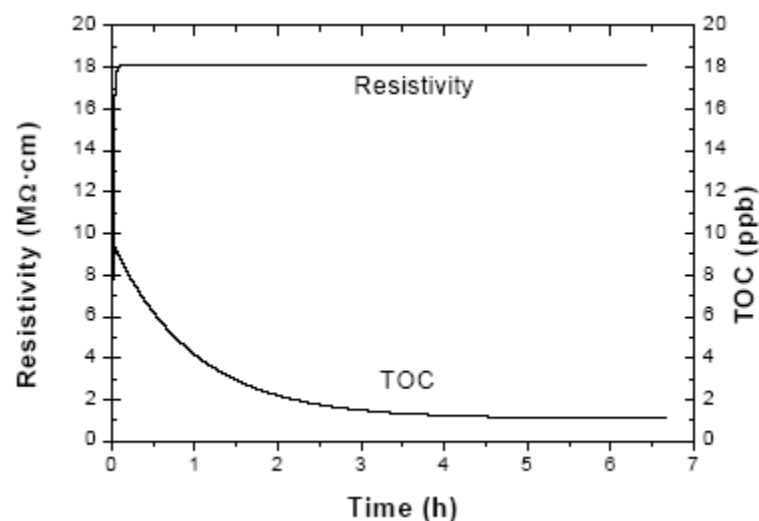
* 1 BV (Bed Volume) = 1 m³ solution per m³ resin

Quality Assurance

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

Rohm and Haas will fully support the quality and performance of AMBERJET UP4000 resin and AMBERJET UP1400 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 UP4000 resin are shown below.

Resistivity and TOC Rinse Performance



All our products are produced in ISO 9001 certified manufacturing facilities.



AMBERJET is a trademark of Rohm and Haas Company and its affiliates, Philadelphia, U.S.A.

Ion exchange resins and polymeric adsorbents, as produced, contain by-products resulting from the manufacturing process. The user must determine the extent to which organic by-products must be removed for any particular use and establish techniques to assure that the appropriate level of purity is achieved for that use. The user must ensure compliance with all prudent safety standards and regulatory requirements governing the application. Except where specifically otherwise stated, Rohm and Haas Company does not recommend its ion exchange resins or polymeric adsorbents, as supplied, as being suitable or appropriately pure for any particular use. Consult your Rohm and Haas technical representative for further information. Acidic and basic regenerant solutions are corrosive and should be handled in a manner that will prevent eye and skin contact. Nitric acid and other strong oxidising agents can cause explosive type reactions when mixed with Ion Exchange resins. Proper design of process equipment to prevent rapid buildup of pressure is necessary if use of an oxidising agent such as nitric acid is contemplated. Before using strong oxidising agents in contact with Ion Exchange Resins, consult sources knowledgeable in the handling of these materials.

Rohm and Haas Company makes no warranties either expressed or implied as to the accuracy or appropriateness of these data and expressly excludes any liability upon Rohm and Haas arising out of its use. We recommend that the prospective users determine for themselves the suitability of Rohm and Haas materials and suggestions for any use prior to their adoption. Suggestions for uses of our products of the inclusion of descriptive material from patents and the citation of specific patents in this publication should not be understood as recommending the use of our products in violation of any patent or as permission or license to use any patents of the Rohm and Haas Company and its affiliates. Material Safety Data Sheets outlining the hazards and handling methods for our products are available on request.