



AMBERJET® 9000 OH

Macroreticular Strong Base Anion Exchange Resin

PRELIMINARY PRODUCT DATA SHEET

AMBERJET 9000 OH is a uniform particle size, MR type, strong base anion exchange resin specifically designed for use in regenerable mixed bed condensate demineraliser systems. Amberjet 9000 OH now combines a proven MR (macroreticular) structure with the hydraulic and kinetic benefits of uniform particle size to deliver the best possible condensate polishing performance and resin life in both PWR nuclear and high pressure fossil power plants. One of the most critical parameters for an anion exchange resin in mixed bed polishing applications is fast kinetics for sulphate removal. In condensate polishing plants the anion resin is often exposed to materials which can foul the resin surface and dramatically reduce its capability to remove sulphate at high flow rates. In many power stations, loss of sulphate mass transfer kinetics is the most frequent cause of water chemistry problems, and the leading cause

of polisher resin replacement. As compared to gel type uniform size anion resins which are commonly used, the unique MR structure of Amberjet 9000 OH is specifically designed to provide improved resistance to surface fouling and the resulting loss of sulphate mass transfer coefficient.

Amberjet 9000 OH is best paired with Amberjet 1600 H, for the ultimate in polisher performance. Amberjet 1600 H is a highly crosslinked uniform size gel cation exchange resin with exceptional resistance to release of polystyrene sulfonate leachables, which can foul anion resins. The combination of a low leachables cation resin, with a fouling resistant anion resin delivers the lowest possible sulphate levels in steam generators and the longest possible resin life. This is especially critical in PWR plants where organic amines are used.

PROPERTIES

Matrix _____	Macroreticular styrene-divinylbenzene copolymer
Functional groups _____	Quaternary ammonium
Physical form _____	Light tan opaque beads
Conversion to OH form _____	93% minimum
Total exchange capacity _____	≥ 0.8 eq/L (OH form)
Moisture holding capacity _____	66 to 75% (OH form)
Shipping weight _____	660 g/L
Harmonic mean size _____	0.58 to 0.70 mm
Uniformity coefficient _____	≤ 1.25
Fine content _____	< 0.425 mm : 1% maximum
Coarse beads _____	> 0.850 mm : 5% maximum

SUGGESTED OPERATING CONDITIONS

Operating temperature _____	15 to 60 °C
Service flow rate (linear velocity) _____	120 m/h, maximum
Regenerant _____	NaOH
Dosage (100% basis) _____	120 to 240 g/L
Flow Rate _____	2 to 4 BV*/h
Concentration _____	4 to 6%
Slow Rinse Volume (at regeneration flow rate) _____	1 to 2 BV
Fast Rinse _____	4 to 8 BV

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

Transfer of mixed beds in condensate polishers : take steps to minimise re-separation of mixed beds, including minimising the volume of free water or transfer water used. A remix is recommended in the service vessel before use.

HYDRAULIC CHARACTERISTICS

Figure 1 shows the bed expansion of AMBERJET 9000 OH, as a function of backwash flow rate and water temperature. Figure 2 shows the pressure drop data for AMBERJET 9000 OH, as a function of service flow rate and water temperature.

Pressure drop data are for clean, classified beds which have not accumulated solids during the service run. If the bed accumulates solids, the pressure drop would increase. The pressure drop of a mixed bed can be approximated by summing the component pressure drops.

Figure 1: Pressure Drop

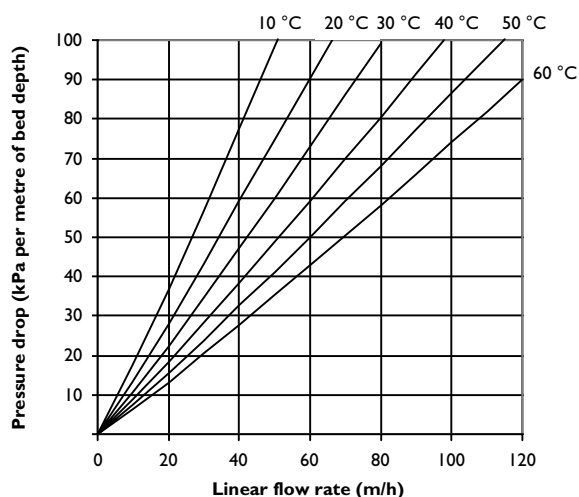
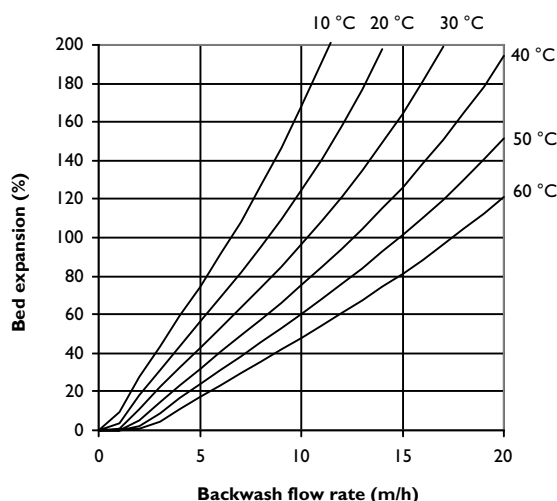


Figure 2 : Bed Expansion



Rohm and Haas/Ion Exchange Resins - Philadelphia, PA - Tel. (800) RH AMBER - Fax: (215) 409-4534
 Rohm and Haas/Ion Exchange Resins - 75579 Paris Cedex 12 - Tel. (33) 1 40 02 50 00 - Fax : 1 43 45 28 19

WEB SITE: <http://www.rohmhaas.com/ionexchange>



AMBERJET is a trademark of Rohm and Haas Company, 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 of appropriateness of this 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. Material Safety Data Sheets outlining the hazards and handling methods for our products are available on request.