

AMBERLITE™ PWA12 Resin

Drinking Water Grade Anion Exchange Resin

AMBERLITE PWA12 resin is a strong base anion exchange resin with unique chemical and physical properties. It can be used in the chloride form for the removal of multiple contaminants from drinking water, as well as for low waste softening.

Paired with AMBERLITE PWC11 resin, a cation exchange resin, AMBERLITE PWA12 resin is the anion resin to be used in the CARIX™ process, a partial demineralization of water using carbon dioxide as a regenerant.

PROPERTIES

Matrix _____	Cross-linked copolymer
Physical form _____	Transparent white beads
Total exchange capacity _____	≥ 1.25 eq/L
Moisture holding capacity _____	57 – 64 %
Shipping weight _____	720 kg/m ³ (45 lb/ft ³)
Particle size _____	
Screen grading _____	0.3 – 1.2 mm (16 – 50 mesh US Std Screens)
Fines content _____	< 0.300 mm: 2% max

SUGGESTED OPERATING CONDITIONS

Please contact your Rohm and Haas representative for system design and application testing details.

Minimum bed depth _____	600 mm (24 inches)
Typical service flow rate _____	4 – 40 BV/h* (0.5 – 5 gpm/ft ³)
Regenerant (as 100 % chemical) _____	NaCl or CO₂
Concentration _____	6 – 12 % Carix only
Minimum level _____	80 g/L
Minimum contact time _____	20 minutes

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

THE CARIX™ PROCESS

The CARIX process is an ion exchange technology developed and patented by the Karlsruhe Nuclear Research Centre in Germany. This process is based on the simultaneous application of a weak acid resin (AMBERLITE PWC11 resin) in the hydrogen form and a strong base resin (AMBERLITE PWA12 resin) in the bicarbonate form (HCO₃⁻).

The resin mixture will de-ionise water partially, removing cations (Ca²⁺, Mg²⁺ and heavy metals) and anions (SO₄²⁻, NO₃⁻, Cl⁻) at the same time. Regeneration of both resins is carried out with carbon dioxide under pressure, without resin separation. The process does not create saline waste and the excess of carbon dioxide is recovered.

COMMISSIONING AND LIMITS OF USE

AMBERLITE PWA12 resin is suitable for use in potable water applications after an initial commissioning rinse of 20 bed volumes of water at 25 °C. The operating capacity of AMBERLITE PWA12 depends on the operating conditions and the feed water conditions.

REGULATORY

AMBERLITE PWA12 resin is certified to ANSI / NSF Standard 61 for drinking water components for applications with minimum flow rates greater than or equal to 2 gpm/ft³. AMBERLITE PWA12 resin is approved in Germany for potable water applications. Please contact your Rohm and Haas representative for additional certification information.

Resin products are manufactured in ISO 9001 certified facilities.

HYDRAULIC CHARACTERISTICS

Figure 1 and Figure 2 show the pressure drop data for AMBERLITE PWA12 resin as a function of flow rate and water temperature. Pressure drop data are valid at the start of the service run with clean water and a correctly classified bed. Figure 3 and Figure 4 show the bed expansion of AMBERLITE PWA12 resin as a function of backwash flow rate and water temperature.

Figure 1 Pressure Drop (metric)

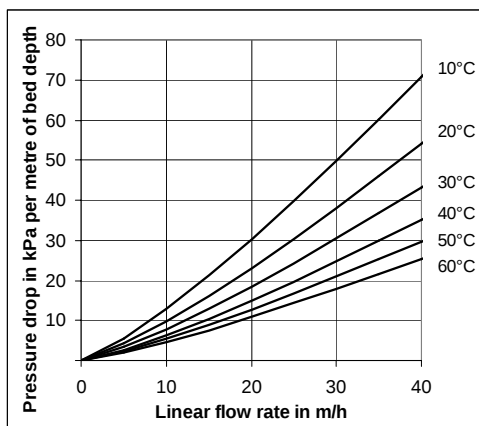


Figure 2 Pressure Drop (US units)

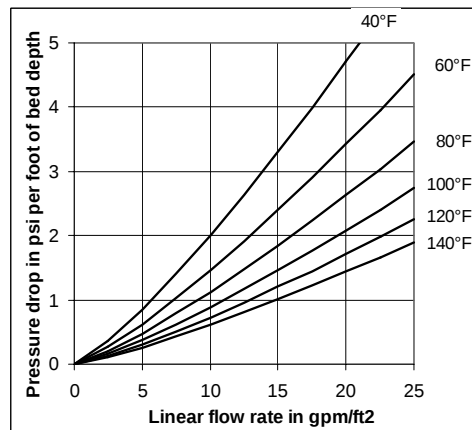


Figure 3 Bed Expansion (metric)

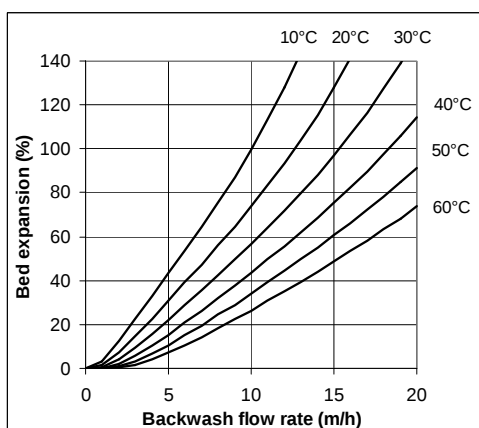
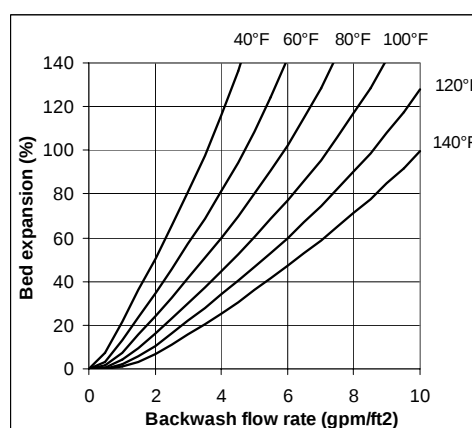


Figure 4 Bed Expansion (US units)



ROHM AND HAAS

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.