



AMBERJET™ 4500 (OH)

Uniform Particle Size Strong Base Anion Exchange Resin

for Mixed Bed Demineralization and Condensate Polishing Applications

For the Power Industry

Description

AMBERJET 4500 OH is a uniform particle size, gel type 1 strong base anion exchange resin. Due to its uniform particle size distribution, AMBERJET 4500 OH has an excellent rinse performance and outstanding physical stability, illustrated by its very high bead integrity, resistance to osmotic shock and mechanical stress.

The resin is delivered in the fully regenerated OH⁻ form which makes it particularly suitable for use in applications where initial regeneration is not feasible or not desired. This includes condensate polishing, where the high capacity and outstanding stability of AMBERJET 4500 OH make it an excellent choice as a combination with AMBERJET 1600 H or AMBERJET 1500 H strong acid cation resins in mixed beds. The combination of these high capacity, uniform particle size resins will result in long service runs with excellent treated water quality and minimal pressure drop.

Typical Properties

Physical form		White to amber uniform translucent spherical beads
Matrix		Styrene-DVB gel
		Anion resin
Functional group		Quaternary amine
Ionic form as shipped		OH⁻ form
Total exchange capacity, min. ^[2]	eq/L kgr/ft ³ as CaCO ₃	1.1 24.0
Moisture retention capacity ^[1]	%	55–65
Bead size distribution†		
Mean particle size ^[1]	μm	590 ± 50
Uniformity coefficient, max. ^[1]		1.1
> 850 μm, max. ^[1]	%	5
< 300 μm, max. ^[1]	%	0.5
Whole uncracked beads, min.	%	95
Crush strength		
Average, min.	g/bead	350
> 200 g/bead, min.	%	95
Ionic conversion ^[1]		
OH ⁻	%	94 min.
Cl ⁻	%	0.5 max
CO ₃ ⁻	%	6 max
Trace metals, dry resin, max. ^[1]	ppm	Na(50); Fe(80); Cu(40); Al(40); Heavy metals [as Pb](20)
Total swelling (Cl ⁻ → OH ⁻)	%	25

(table continued on next page)

(table continued from previous page)

Particle density	g/mL	1.08
Shipping weight**	g/L	657
	lbs/ft ³	41

[1] Contractual value

[2] Average value calculated from statistical quality control

Test methods are available on request.

† For additional particle size information, please refer to Particle Size Distribution Cross Reference Chart (Form No. 177-01775).

**As per the backwashed and settled density of the resin, determined by ASTM D-2187

Suggested Operating Conditions

Maximum operating temperature OH ⁻ form Cl ⁻ form	60°C (140°F) 100°C (212°F)
pH range	0–14
Bed depth, min.	450 mm (1.5 ft)
Flow rates: Service/fast rinse Service/condensate polishing Backwash Co-current regeneration/displacement rinse	5–60 m/h (2–24 gpm/ft ²) 40–150 m/h (16–60 gpm/ft ²) See figure 1 1–10 m/h (0.4–4 gpm/ft ²)
Total rinse requirement	2–5 BV*
Regenerant: Type Temperature	4–8% NaOH Ambient or up to 60°C (140°F) for silica removal

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

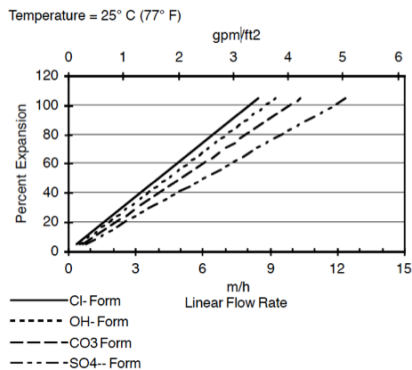
Packaging

25 liter bags or 5 cubic feet fiber drums

Hydraulic Characteristics

Figure 1 shows the bed expansion of AMBERJET 4500 OH as a function of backwash flow rate and water temperature. Figure 2 shows the pressure drop data for AMBERJET 4500 OH as a function of service flow rate and water temperature. Pressure drop data are valid at the start of the service run with clear water and a correctly classified bed.

Figure 1. Backwash Expansion Data

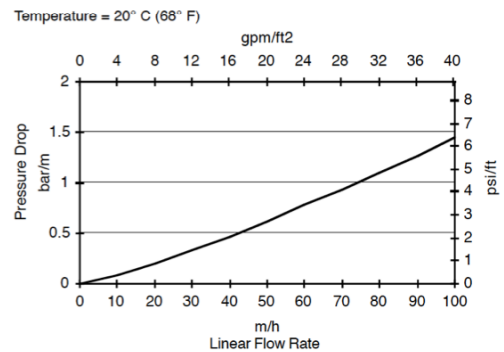


For other temperatures use:

$$F_T = F_{77°F} [1 + 0.008 (T_F - 77)], \text{ where } F = \text{gpm/ft}^2$$

$$F_T = F_{25°C} [1 + 0.008 (1.8T_C - 45)], \text{ where } F = \text{m/h}$$

Figure 2. Pressure Drop Data



For other temperatures use:

$$P_T = P_{20°C} / (0.026 T_C + 0.48), \text{ where } P = \text{bar/m}$$

$$P_T = P_{68°F} / (0.014 T_F + 0.05), \text{ where } P = \text{psi/ft}$$

Product Stewardship

Dow has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with Dow products - from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

Dow strongly encourages its customers to review both their manufacturing processes and their applications of Dow products from the standpoint of human health and environmental quality to ensure that Dow products are not used in ways for which they are not intended or tested. Dow personnel are available to answer your questions and to provide reasonable technical support. Dow product literature, including safety data sheets, should be consulted prior to use of Dow products. Current safety data sheets are available from Dow.

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.

DOWEX™ Ion Exchange Resins For more information about DOWEX™ resins, call the Dow Water & Process Solutions business:

North America: 1-800-447-4369
Latin America: (+55) 11-5188-9222
Europe: (+32) 3-450-2240
Pacific: +60 3 7958 3392
Japan: +813 5460 2100
China: +86 21 2301 1000
<http://www.dowwaterandprocess.com>

Notice: No freedom from any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change with time, Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other governmental enactments. The product shown in this literature may not be available for sale and/or available in all geographies where Dow is represented. The claims made may not have been approved for use in all countries. Dow assumes no obligation or liability for the information in this document. References to "Dow" mean the Dow legal entity selling products to Customer unless otherwise expressly noted. Any claim for breach of warranty may only be brought against the Dow legal entity selling products to Customer. The applicable law governing this document shall be the law set forth in Dow's general terms and conditions or as otherwise agreed to by the parties for the sale of products. For sales governed by German law, a "Limited Warranty" will not be granted. NO WARRANTIES ARE GIVEN EXCEPT FOR ANY SPECIFIC WARRANTY SET FORTH HEREIN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED.

