



AMBERLYST™ A22 Ion Exchange Resin

Acid Absorber for Industrial Processes

Description

AMBERLYST™ A22 Ion Exchange Resin is a weak base anion resin exhibiting exceptionally high capacity for acid absorption in a variety of industrial process applications.

For some applications that are sensitive to moisture, AMBERLYST A22 can be dried to remove excess moisture. Since there may be safety concerns associated with the drying process, please contact your Dow representative if this is desired.

Applications

The resin can remove acids from:

- Polyglycols
- Polyesters
- Polyalphaolefins
- Phosphate esters
- Automobile oils

Typical Physical and Chemical Properties

Matrix	Styrene-divinylbenzene, macroporous
Type	Weak base anion
Physical Form	Yellow to brown, spherical beads
Ionic Form as Shipped	Free Base (FB)
Total Exchange Capacity	≥ 1.7 eq/L
Weak Base Capacity	≥ 1.5 eq/L
Metals Analysis	
Fe, Al, Cu, Ca, Mg	≤ 50 ppm of each
Water Retention Capacity	40 – 50%
Particle Diameter ^b	475 – 600 μm
Swelling	FB → HCl : 22 – 28%
Particle Density	1.04 g/mL
Bulk Density, as Shipped ^c	640 g/L

^b For additional particle size information, please refer to the [Particle Size Distribution Cross Reference Chart](#) (Form No. 177-01775).

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

Suggested Operating Conditions

Maximum Operating Temperature	120°C (250°F)
pH Range	0 – 7
Total Rinse Requirement	1 – 3 BV*

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

Hydraulic Characteristics

Bed expansion of AMBERLYST™ A22 Ion Exchange Resin as a function of backwash flowrate at 25°C (77°F) is shown in Figure 1. The flowrate necessary to achieve a desired bed expansion for other water temperatures can be calculated with the provided equations.

Pressure drop data for AMBERLYST A22 as a function of viscosity at 20°C (68°F) is shown in Figure 2.

Figure 1: Backwash Expansion

Temperature = 25°C (77°F)

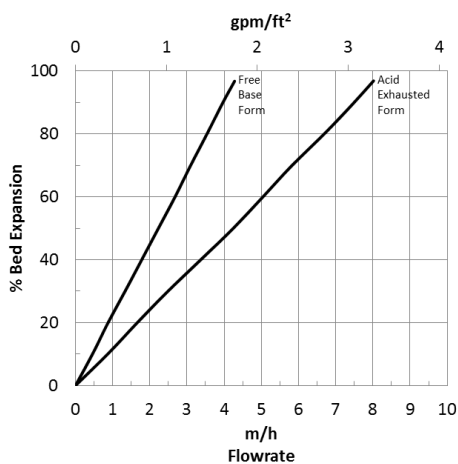
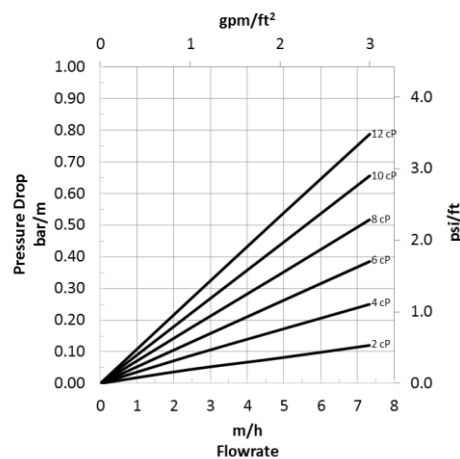


Figure 2: Pressure Drop

Temperature = 20°C (68°F)

Viscosity = 2 – 12 cP



For other temperatures use:

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

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

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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.

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