



Product Data Sheet

AMBERLYST™ A21

Industrial Grade Weakly Basic Polymeric Resin

Description

AMBERLYST™ A21 is a bead form, weak base anion exchange resin developed for the removal of acidic materials from product streams. AMBERLYST A21 is supplied in the water-moist free base form. After proper solvent conditioning, it can be used directly to remove acidic materials from organic solvents and to remove phenol from benzene and inhibitors from monomers : hydroquinone (HQ), hydroquinone mono-ethyl ether (MEHQ), tertiary butyl catechol (TBC).

AMBERLYST A21 is also used in adsorption of SO₂ from gas streams.

Typical Physical and Chemical Properties

Physical Form	Opaque spherical beads
Ionic Form as Shipped	Free Base (FB)
Concentration of Active Sites	≥ 4.6 eq/kg ≥ 1.30 eq/L
Water Retention Capacity	56 – 62% (FB form)
Shipping Weight	660 g/L (41.2 lbs/ft ³)
Particle Size	
Harmonic Mean Size	490 – 690 μm
Uniformity Coefficient, max	≤ 1.80
Fine Contents	< 0.300 mm : 1% max
Nitrogen BET	
Surface Area	35 m ² /g
Average Pore Diameter	110 Å
Total Pore Volume	0.10 cc/g
Swelling	Water to phenol : 77%

These are typical properties, not to be construed as specifications.
Test methods are available on request.

Suggested Operating Conditions

Maximum Operating Temperature	100°C (212°F)
Minimum Bed Depth	60 cm (24 inches)
Service Flow Rate	1 – 5 BV*/h (LHSV)**
Pressure Drop Limitation	1 bar (15 psig) across the bed
Regenerants	NaOH NH ₄ OH Na ₂ CO ₃
Flow Rate (BV*/h)	4 – 8 4 – 8 4 – 8
(gpm/ft ³)	0.5 – 1.0 0.5 – 1.0 0.5 – 1.0
Concentration (%)	2 – 4 2 – 4 4 – 8
Level	120% of ionic load
Minimum Contact Time	30 minutes
Slow Rinse	2 BV (15 gal/ft ³) at regeneration flow rate
Fast Rinse	2 to 4 BV* (15 – 30 gal/ft ³) at service flow rate

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

**LHSV (Liquid Hourly Space Velocity)

Hydraulic Characteristics

Figure 1 shows the bed expansion of AMBERLYST A21 as a function of backwash flow rate and water temperature.

Figure 2 shows the pressure drop data for AMBERLYST A21 as a function of service flow rate and water temperature.

Figure 1: Bed Expansion

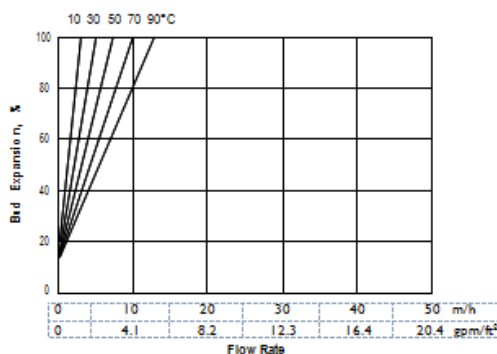
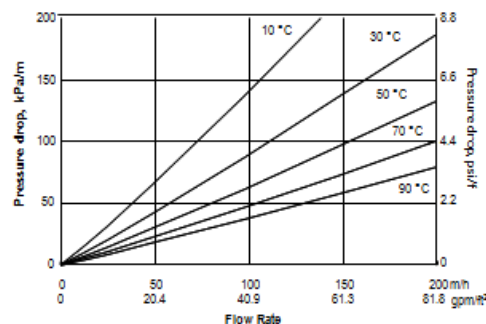


Figure 2: Pressure Drop



Handling Precautions

Before using this product, consult the Material Safety Data Sheet (MSDS)/Safety Data Sheet (SDS) for details on product hazards, recommended handling precautions and product storage.

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AMBERLYST™ Ion Exchange Resins Contact Dow Water & Process Solutions:

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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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