

AMBERLYST™ 15WET Industrial Grade Strongly Acidic Catalyst For Catalysis and Separation technologies

Description

AMBERLYST 15WET is a strongly acidic, sulfonic acid, macroreticular polymeric resin based on crosslinked styrene divinylbenzene copolymers. Its continuous open pore structure and excellent physical, thermal and chemical stability makes it the resin of choice in many applications. It also possesses a greater resistance to oxidants such as chlorine, oxygen and chromates than most other polymeric resins.

AMBERLYST 15WET can be used directly in aqueous systems or in organic media after conditioning with a water miscible solvent.

Typical Properties

These properties are typical but do not constitute specifications.

Physical form	Opaque beads
Ionic form as shipped	Hydrogen
Concentration of active sites ^[1]	≥ 1.7 eq/L ≤ 4.7 eq/kg
Moisture holding capacity ^[1]	52 to 57% (H ⁺ form)
Shipping weight	770 g/L (48 lbs/ft ³)
Particle size	
Uniformity coefficient	≤ 1.70
Harmonic mean size	0.600 to 0.850 mm
Fines content ^[1]	< 0.355 mm : 1.0% max
Coarse beads	> 1.180 mm : 5.0% max
Nitrogen BET	
Surface area	53 m ² /g
Average pore diameter	300 Å
Total pore volume	0.40 ml/g
Shrinkage	Water to methanol: 5% Water to MTBE: 9% Water to hexane: 22% Water to dry: 37%

^[1] Contractual value

Test methods are available on request.

Catalysis

AMBERLYST 15WET is used in a wide variety of organic reactions. It has the optimal balance of surface area, acid capacity, activity and pore diameter to make it the catalyst of choice for etherification (MTBE, ETBE, TAME), esterification and hydration reactions. Its optimized pore size distribution makes it an excellent catalyst when fouling is anticipated.

Suggested Operating Conditions

Maximum operating temperature	120°C (250°F)
Minimum bed depth	1000 mm (39 inches)
Operating flow rate	1 to 5 BV*/h (LHSV)
Pressure drop limitation	1 bar (15 psig) across the bed

* 1 BV = 1 m³ solution per m³ of resin

Separation Technologies

AMBERLYST 15WET can be used for processes where ionic or organic impurities have to be removed or recovered from a process liquor. Both cationic and anionic compounds can be removed through either ionic and adsorptive interactions of the polymer and its acidic groups with the impurity. Its excellent resistance against oxidation makes it a superior resin in many applications.

Suggested Operating Conditions

pH range		0 to 14	
Maximum operating temperature		120 °C (250 °F)	
Minimum bed depth		1000 mm (39 inches)	
Service flow rate		1 to 40 BV/h (0.125 to 5 gpm/ft ³)	
Regenerants		HC1	H₂SO₄
Flow rate	(BV/h)	4 to 8	4 to 8
Flow rate	(gpm/ft ³)	0.5 to 1.0	0.5 to 1.0
Concentration	(%)	4 to 10	1 to 5
Level	(g/L)	40 to 100	40 to 200
Level	(lbs/ft ³)	2.5 to 6	2.5 to 12
Minimum contact time		30 minutes	
Slow rinse		2 BV (15 gal/ft ³) at regeneration flow rate	
Fast rinse		2 to 4 BV (15 to 30 gal/ft ³) at service flow rate	

Hydraulic Characteristics

Figure 1 shows the bed expansion of AMBERLYST 15WET as a function of backwash flow rate and water temperature.

Figure 1 : Bed Expansion

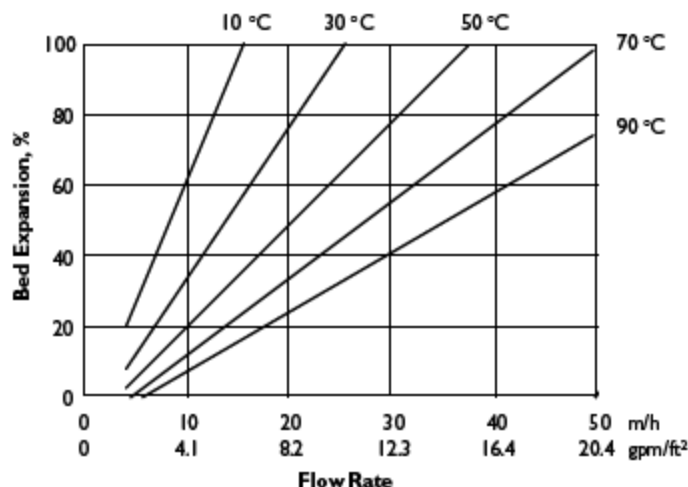
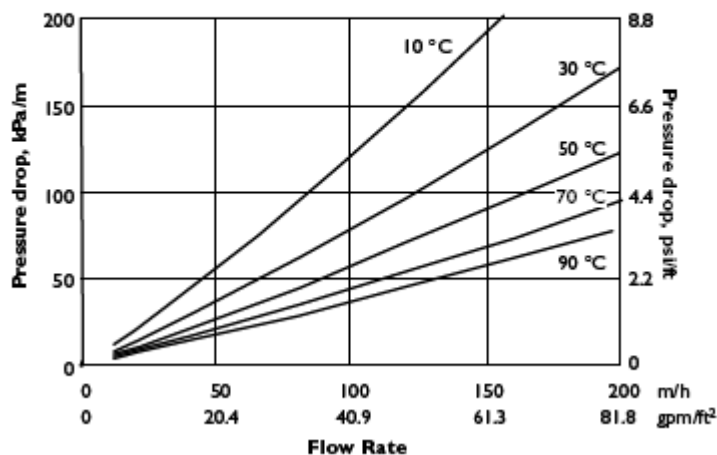


Figure 2 shows the pressure drop data for AMBERLYST 15WET as a function of service flow rate and water temperature.

Figure 2 : Pressure Drop



All our products are produced in ISO 9002 certified manufacturing facilities.



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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.

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