

**AMBERLYST™ 15WET**

Industrial Grade Strongly Acidic Catalyst

Introduction

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.

Properties

Physical form	Opaque beads
Ionic form as shipped	Hydrogen
Concentration of active sites	≥ 1.7 eq/L ≤ 4.7 eq/kg
Moisture holding capacity	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	< 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%

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	
pH range	0 to 14	
Service flow rate	1 to 40 BV/h (0.125 to 5 gpm/ft ³)	
Regenerants	HC1	H ₂ SO ₄
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	

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.

Hydraulic Characteristics

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

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

Figure 1 : Bed Expansion

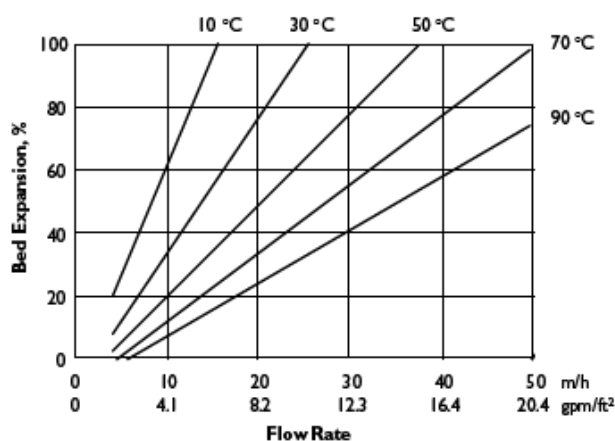
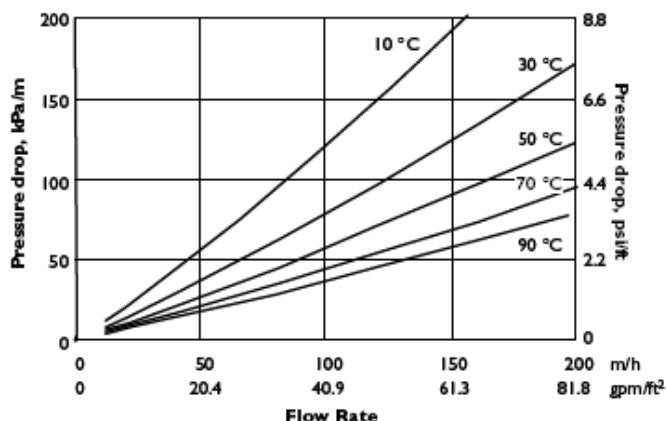


Figure 2 : Pressure Drop



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