



AMBERLYST[®] 40WET

Industrial Grade Strongly Acidic Polymeric Resin

Introduction

AMBERLYST 40WET 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. The polymeric structure of AMBERLYST 40WET has been optimized to offer the very highest acid site concentration as well as excellent mechanical, chemical and thermal stability.

Properties

Physical form	Black, spherical beads
Ionic form as shipped	Hydrogen
Concentration of acid sites ^[1]	≥ 2.2 eq/L
Moisture holding capacity ^[1]	44 to 53 % (H ⁺ form)
Bulk density	830 g/L (51.8 lbs/ft ³) typical
Particle Size	
Harmonic mean size	0.58 to 0.80 mm
Uniformity coefficient	≤ 1.5
Fine contents ^[1]	< 0.425 mm : 5.0 % max
Coarse beads	> 1.180 mm : 5.0 % max
Nitrogen BET	
Surface area	33 m ² /g
Average pore diameter	170 Å
Total pore volume	0.15 ml/g
Shrinkage	Water to methanol : 5.5 % Water to MTBE : 13 % Water to hexane : 28.5 %

^[1]Contractual value

Test methods available upon request

Catalysis

AMBERLYST 40WET is used as heterogeneous catalyst when a high acid density is required.

Due to its pore size distribution AMBERLYST 40WET shows very good resistance to organic fouling. It can be used in a wide variety of organic reactions.

Seperation Technologies

AMBERLYST 40WET is used to recover metals from aqueous and non aqueous solutions. It's very high acid site concentration of more than 2.2 eq/L makes it the resin of choice when long cycles or very efficient elution are required. Its has a unique combination of high capacity and high porosity. The black color of AMBERLYST 40WET makes it easy to separate from AMBERLYST 26 OH when used in polishing mixed bed operations.

Suggested Operating Conditions

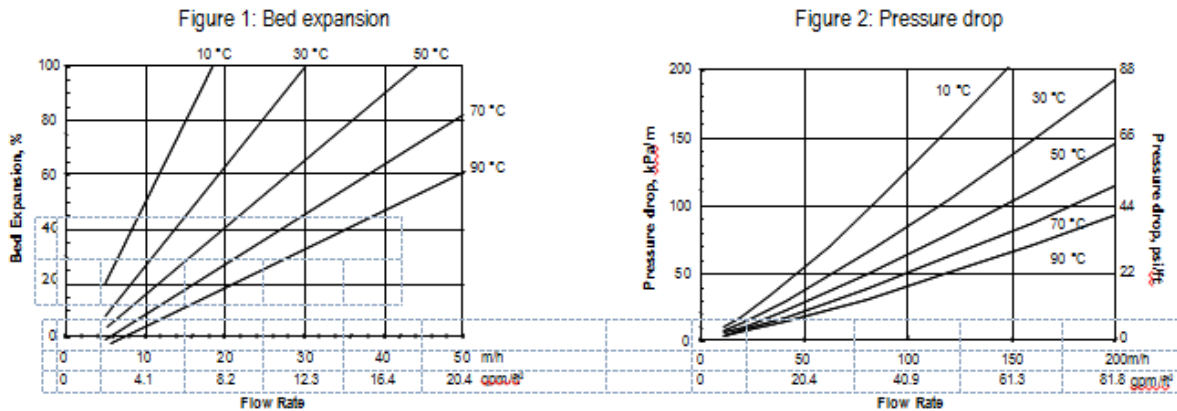
Maximum operating temperature	140°C (285 °F)			
Minimum bed depth	60 cm (24 inches)			
Operating flow rate	1 to 8 BV*/h (LHSV) (0.12 to 1 gpm/ft ³)			
Pressure drop limitation	1 bar (15 psig) across the bed			
Service flow rate	5 to 40 BV*/h (0.625 to 5 gpm/ft ³)			
Regenerants	NaCl	HCl	H ₂ SO ₄	HNO ₃
Level (g/L)	80-400	60-300	60-350	80-700
Level (lbs/ft ³)	5-25	3.75-18.75	3.75-22	5-44
Concentration (%)	10	5 – 10	2 – 8	5 - 20
Flow rate	2 to 8 BV/h (0.25 to 1 gpm/ft ³)			
Rinse	4 to 6 BV (30 to 45 gal/ft ³)			

* 1 BV = 1m³ solution per m³ of resin

Hydraulic Characteristics

Figure 1 shows the bed expansion of AMBERLYST 40Wet as a function of backwash flow rate and water temperature.

Figure 2 shows the pressure drop data for AMBERLYST 40Wet as a function of service flow rate and water temperature.



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