



Product Data Sheet

AMBERLYST™ 17DRY Polymeric Catalyst Industrial-grade, Strongly Acidic Catalyst

Description

AMBERLYST™ 17DRY Polymeric Catalyst is a bead-form, strongly acidic catalyst developed particularly for heterogeneous acid catalysis of a wide variety of organic reactions. It is also useful in non-aqueous ion exchange systems for the removal of cationic impurities.

Continuous catalyst operations in packed beds must be optimized for maximum throughput. To facilitate this, AMBERLYST™ 17DRY is made by a special process resulting in excellent uniformity of bead size. Compared to resins with a Gaussian particle size distribution, uniform particle size resins minimize the kinetic limitations of a longer diffusion path in large beads while also limiting the contribution to higher pressure drop introduced by smaller beads.

Applications

- Phenol alkylation
- Esterification

Typical Properties

Physical Properties	
Copolymer	Styrene-divinylbenzene
Matrix	Macroporous
Type	Strong acid cation
Functional Group	Sulfonic acid
Physical Form	White to yellow, opaque, spherical beads
Nitrogen BET	
Surface Area	30 m ² /g
Total Pore Volume	0.35 cc/g
Average Pore Diameter	200 Å
Chemical Properties	
Ionic Form as Shipped	H ⁺
Concentration of Acid Sites †	≥ 4.70 eq/kg
Catalyst Volatiles	≤ 3.0%
Particle Size §	
Particle Diameter	475 ± 50 µm
< 300 µm	≤ 1.0%
400 – 650 µm	≤ 95.0%
Swelling (in solvent)	
Phenol	38%
Density	
Shipping Weight	590 g/L

† Dry Weight Capacity ≥ 4.70 eq/kg

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

Suggested Operating Conditions

Maximum Operating Temperature	120°C (250°F)
Bed Depth, min.	600 mm (2.0 ft)
Pressure Drop, max.	1 bar (15 psig) across the bed
Flowrates	
Linear Hourly Space Velocity (LHSV)	0.5 – 5 h ⁻¹

Application Information

Dry AMBERLYST™ Polymeric Catalysts are used for a wide variety of applications including phenol alkylation, aldol condensations, ester hydrolysis, esterification, and isomerization to name a very few. Additional selectivity is introduced by the polymeric matrix due to exclusion of larger molecules (1500 – 2000 MW) from the reaction sites.

Many acid catalyzed reactions are anhydrous so AMBERLYST™ 17DRY Polymeric Catalyst is produced in the dry form. For many reactions a low level of moisture is suitable for good interaction with reaction solvent. In other cases further moisture removal may be required. Further catalyst drying is best performed by washing the catalyst with a dry, water miscible solvent (alcohol or ketone). It is important to verify the moisture content of the catalyst during evaluation and operations. A convenient way to measure moisture content is with Karl Fisher titration, using a known volume of catalyst in dry solvent.

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Please be aware of the following:

- **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.

Have a question? Contact us at:

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