Product Data Sheet

AMBERLYST™ 45 Polymeric Catalyst

High-temperature Strongly Acidic Catalyst

Description

AMBERLYST™ 45 Polymeric Catalyst is a macroporous, sulfonic acid, polymeric catalyst designed for use in high-temperature heterogenous catalysis. It is particularly well-suited for processes such as olefin hydration, esterification, and aromatic alkylation.

In these applications, AMBERLYST™ 45 offers definite advantages over conventional resins:

- Higher thermal stability
- High catalytic activity

Applications

- High-temperature esterification (acetates, acrylates, fatty acid esters)
- High-temperature olefin hydration (IPA, SBA)
- High-temperature aromatic alkylation

Typical Properties

Physical Properties	
Copolymer	Styrene-divinylbenzene
Matrix	Macroporous
Type	Strong acid cation
Functional Group	Sulfonic acid
Physical Form	Brown to black, opaque, spherical beads
Nitrogen BET	
Surface Area	49 m^2/g
Average Pore Diameter	190 Å
Chemical Properties	
Ionic Form as Shipped	H^+
Concentration of Acid Sites ‡	≥ 2.95 eq/kg ≥ 1.00 eq/L
Water Retention Capacity	51 – 55%
Particle Size §	
Uniformity Coefficient	≤ 1.5
< 355 µm	≤ 0.2%
Density	
Shipping Weight	770 g/L

‡ Dry Weight Capacity ≥ 2.95 eq/kg; Total Exchange Capacity (on a water-wet basis) ≥ 1.00 eq/L

§ For additional particle size information, please refer to the Particle Size Distribution Cross Reference Chart (Form No. 45-D00954-en).

Suggested Operating Conditions

Maximum Operating Temperature	170°C (340°F)
Bed Depth, min.	600 mm (2.0 ft)
Pressure Drop, max.	3 bar (45 psig) across the bed
Flowrates	
Linear Hourly Space Velocity (LHSV)	0.5 – 5 h^{-1}

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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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