Product Data Sheet

DuPont™ AmberLyst™ 17DRY Polymeric Catalyst

Industrial-grade, Strongly Acidic Catalyst

Description

DuPont™ 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. 45-D00954-en).

Form No. 45-D00785-en, Rev. 2
February 2023

Suggested Operating Conditions

Maximum Operating Temperature	120°C (248°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 DuPont™ 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.

Product Stewardship

DuPont has a fundamental concern for all who make, distribute, and use its products, and for the environment in which we live. This concern is the basis for our product stewardship philosophy by which we assess the safety, health, and environmental information on our products and then take appropriate steps to protect employee and public health and our environment. The success of our product stewardship program rests with each and every individual involved with DuPont products—from the initial concept and research, to manufacture, use, sale, disposal, and recycle of each product.

Customer Notice

DuPont strongly encourages its customers to review both their manufacturing processes and their applications of DuPont products from the standpoint of human health and environmental quality to ensure that DuPont products are not used in ways for which they are not intended or tested. DuPont personnel are available to answer your questions and to provide reasonable technical support. DuPont product literature, including safety data sheets, should be consulted prior to use of DuPont products. Current safety data sheets are available from DuPont.

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.

Form No. 45-D00785-en, Rev. 2
February 2023

Have a question? Contact us at:

www.dupont.com/water/contact-us

All information set forth herein is for informational purposes only. This information is general information and may differ from that based on actual conditions. Customer is responsible for determining whether products and the information in this document are appropriate for Customer's use and for ensuring that Customer's workplace and disposal practices are in compliance with applicable laws and other government enactments. The product shown in this literature may not be available for sale and/or available in all geographies where DuPont is represented. The claims made may not have been approved for use in all countries. Please note that physical properties may vary depending on certain conditions and while operating conditions stated in this document are intended to lengthen product lifespan and/or improve product performance, it will ultimately depend on actual circumstances and is in no event a guarantee of achieving any specific results. DuPont assumes no obligation or liability for the information in this document. References to "DuPont" or the "Company" mean the DuPont legal entity selling the products to Customer unless otherwise expressly noted. NO WARRANTIES ARE GIVEN; ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXPRESSLY EXCLUDED. No freedom from infringement of any patent or trademark owned by DuPont or others is to be inferred.

© 2023 DuPont. DuPont™, the DuPont Oval Logo, and all trademarks and service marks denoted with ™, ℠ or ® are owned by affiliates of DuPont de Nemours Inc., unless otherwise noted.

Form No. 45-D00785-en, Rev. 2
February 2023