

**DuPont™ AmberLyst™ 16WET Polymeric Catalyst**

Industrial-grade, Strongly Acidic Catalyst

Description

DuPont™ AmberLyst™ 16WET Polymeric Catalyst is a bead-form, macroporous, sulfonic acid catalyst developed particularly for heterogeneous catalysis. The macroporous structure and large pore diameter of AmberLyst™ 16WET provide excellent activity in polar organic systems and a good resistance against polymer fouling. AmberLyst™ 16WET is mainly used in esterification and phenol alkylation reactions.

Applications

- Phenol alkylation
- Phenol purification
- Esterification (acetates, acrylates, fatty acid esters)

Typical Properties**Physical Properties**

Copolymer	Styrene-divinylbenzene
Matrix	Macroporous
Type	Strong acid cation
Functional Group	Sulfonic acid
Physical Form	Gray, opaque, spherical beads

Nitrogen BET

Surface Area	30 m ² /g
Total Pore Volume	0.20 cc/g
Average Pore Diameter	250 Å

Chemical Properties

Ionic Form as Shipped	H ⁺
Concentration of Acid Sites ‡	≥ 4.80 eq/kg ≥ 1.70 eq/L
Water Retention Capacity	52 – 58%

Particle Size §

Particle Diameter	600 – 800 µm
Uniformity Coefficient	≤ 1.60
< 300 µm	≤ 1.0%
> 1180 µm	≤ 10.0%

Shrinkage (in solvent)

Phenol	32%
Dry	52%

Density

Shipping Weight	780 g/L
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‡ Dry Weight Capacity ≥ 4.80 eq/kg; Total Exchange Capacity (on a water-wet basis) ≥ 1.70 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	130°C (265°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
Backwash	See Figure 1

Hydraulic Characteristics

Estimated bed expansion of DuPont™ AmberLyst™ 16WET Polymeric Catalyst as a function of backwash flowrate and temperature is shown in Figure 1.

Estimated pressure drop for AmberLyst™ 16WET as a function of service flowrate and temperature is shown in Figure 2. These pressure drop expectations are valid at the start of the service run with clean water and a well-classified bed.

Figure 1: Backwash Expansion

Temperature = 10 – 90°C (50 – 194°F)

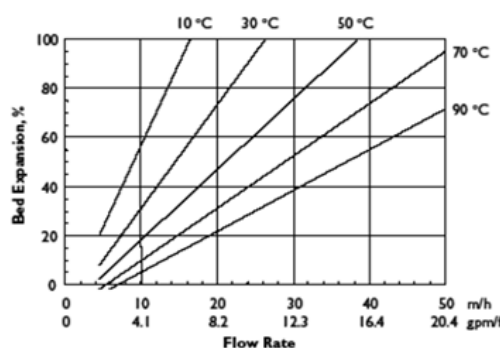
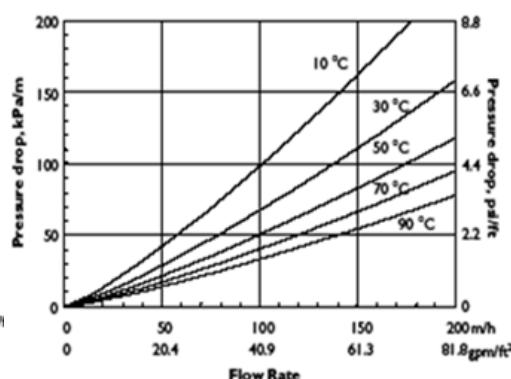


Figure 2: Pressure Drop

Temperature = 10 – 90°C (50 – 194°F)



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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.

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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.



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