

TECHNICAL DATA SHEET

Acetal (POM)

(polyoxymethylene)

Acetal is a very high strength, low friction engineered plastic exhibiting excellent wear Resistance in both wet and dry environments. With good dimensional stability these materials provide ease of machining, making Acetal an outstanding choice for applications requiring complex machining and tight tolerances.

Homopolymer Acetal (Delrin®)

has superior ambient temperature strength, stiffness, and toughness.

Copolymer Acetal has superior performance in continuous high heat and hot water environments. Copolymer Acetal also tends to have less porosity than Homopolymer Acetal.

Grades of Acetal

ACETAL COPOLYMER (unfilled)

The copolymer grade offers excellent performance at a slightly lower cost than Delrin®. Certain grades are FDA, USDA, NSF, Canada AG and 3-A Dairy compliant. Low stress levels and high strength assure flatness and dimensional stability up to a maximum continuous service temperature of 180°F.

DELRIN® Homopolymer (unfilled)

Acetal homopolymer offers slightly higher mechanical properties than acetal copolymer, but may contain a low density center (also known as “center line porosity”) especially in large cross-sections. The homopolymer also gives slightly less chemical resistance than copolymer acetal. For example, Delrin® is ideal for small diameter, thin-walled bushings that benefit from the additional strength and rigidity of homopolymer acetal. Delrin® is available in natural and black.

DELRIN® AF (PTFE-filled)

This material is manufactured from Delrin® homopolymer resin which has been uniformly filled with a dispersion of PTFE fibers. Delrin®AF is a unique thermoplastic material for use in moving parts in which low friction and long wear life are important. It retains 90% of the mechanical strength of unfilled acetal homopolymer, while offering very low friction.

Benefits

High mechanical strength and rigidity
 Machinability
 Resistance to chemicals
 Resistance to environment
 Low moisture absorption
 Wear and abrasion resistance
 Natural Lubricity

Applications

Pump and valve components
 Close tolerance precision parts
 Thin wall parts
 Electronic components
 Gears
 Bearings
 Bushings
 Rollers

SHAPES AVAILABLE



SEE NEXT PAGE FOR ADDITIONAL INFORMATION

NOTE: The information contained herein are typical values intended for reference and comparison purposes only. They should NOT be used as a basis for design specifications or quality control. Contact us for manufacturers' complete material property datasheets.
 All values at 73°F (23°C) unless otherwise noted.



TYPICAL PROPERTIES of ACETALS

ASTM or UL test	Property	Acetal Copolymer	Delrin® Homopolymer	Delrin® AF PTFE-filled
PHYSICAL				
D792	Density (lb/in ³) (g/cm ³)	0.051 1.41	0.051 1.41	0.054 1.50
D570	Water Absorption, 24 hrs (%)	0.2	0.2	0.2
MECHANICAL				
D638	Tensile Strength (psi)	9,500	11,000	8,000
D638	Tensile Modulus (psi)	400,000	450,000	435,000
D638	Tensile Elongation at Break (%)	30	30	15
D790	Flexural Strength (psi)	12,000	13,000	12,000
D790	Flexural Modulus (psi)	400,000	450,000	435,000
D695	Compressive Strength (psi)	15,000	16,000	16,000
D695	Compressive Modulus (psi)	400,000	450,000	350,000
D785	Hardness, Rockwell	M88 / R120	M89 / R122	M85 / R115
D256	IZOD Impact Notched (ft-lb/in)	1.0	1.0	0.7
THERMAL				
D696	Coefficient of Linear Thermal Expansion (x 10 ⁻⁵ in./in./°F)	5.40	4.70	5.00
D648	Heat Deflection Temp (°F / °C) at 264 psi	220 / 104	250 / 121	244 / 118
D3418	Melting Point Temp (°F / °C)	335 / 168	347 / 175	347 / 175
-	Max Operating Temp (°F / °C)	180 / 82	180 / 82	180 / 82
C177	Thermal Conductivity (BTU-in/ft ² -hr-°F) (x 10 ⁻⁴ cal/cm-sec-°C)	1.6 5.5	2.5 8.6	-
UL94	Flammability Rating	HB	HB	HB
ELECTRICAL				
D149	Dielectric Strength (V/mil) short time, 1/8" thick	420	450	400
D150	Dielectric Constant at 1 MHz	3.8	3.7	3.1
D150	Dissipation Factor at 1 MHz	0.005	0.005	0.010
D257	Volume Resistivity (ohm-cm) at 50% RH	10 ¹⁵	10 ¹⁵	3.0 x 10 ¹⁶

Delrin® is a registered trademark of E.I. Dupont

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