

General Information

Chemical Designation:	<i>Acetal homopolymer is an engineering thermoplastic polymer that provides good strength and stiffness. DuPont Delrin® is a popular acetal homopolymer brand name and the most commonly used acetal homopolymer. It is easily machined with conventional metal working equipment into custom components having very close tolerances. Both sheet and rod are available in many thicknesses and diameters. Rod stock comes ground to diameter to accommodate through spindle turning. Standard colors are black and (opaque) milk white, while custom colors are available as custom runs. Also, homopolymer acetals have a low-density centerline/core porosity, especially in thicker sheet sections.</i>
POM (Polyoxymethylene)	
Fillers:	
Unfilled	
Color:	<i>Acetal homopolymer absorbs minimal amounts of moisture, is slightly stronger, but has less chemical resistance than copolymer acetals. Therefore it is often used in applications in industrial equipment, such as conveyor and machinery components.</i>
White (Opaque) or Black	
Specific Gravity:	<i>Although it has many benefits as an unfilled material, Acetal homopolymer can also be filled with solid lubricants and or glass fibers to enhance its structural, bearing and wear properties. Materials such as glass, PTFE, Graphite and oil are all available in standard sizes.</i>
1.41	<i>Delrin® is a registered trademark of DuPont.</i>

Technical Information

Specification	Test	Value	Units
Specific Gravity, 73°F	D792	1.41	–
Tensile Strength @ Yield, 73°F	D638	11,000	psi
Tensile Modulus of Elasticity, 73°F	D638	450,000	psi
Tensile Elongation (at break), 73°F	D638	30	%
Flexural Strength, 73°F	D790	13,000	psi
Flexural Modulus of Elasticity	D790	450,000	psi
Shear Strength, 73°F	D732	9,000	psi
Compressive Strength – Ultimate		1,000	psi
Compressive Strength at 2% Deformation	D695	1,000	psi
Compressive Strength at 10% Deformation	D695	16,000	psi
Deformation Under Load		2	%
Compressive Modulus of Elasticity, 73°F	D695	450,000	
Compressive Strength \perp to Laminate (Modulus)		1,000	psi
Compressive Strength \perp to Laminate (Yield)		1,000	psi
Compressive Strength \perp to Laminate (Ultimate)		1,000	psi
Hardness, Durometer (Shore "D" scale)	D2240	D89	
Hardness, Rockwell (Scale as noted)	D785	M89 (R122)	Rockwell M
Izod Impact, Notched @ 73°F	D256 Type A	1.0	ft.lbs/in. of notch
Coefficient of Friction (Dry vs Steel) Static	PTM 55007	0.30	
Coefficient of Friction (Dry vs Steel) Dynamic	PTM 55007	0.25	
Maximum Static Bearing Load (P)	PTM 55007	1,000	psi
Maximum Unlubricated No Load Bearing Velocity (V)	PTM 55007	15	ft/minute
Maximum Limiting PV (Unlubricated)	PTM 55007	2,700	psi x ft/min.
Wear Factor "K" x 10 ⁻¹⁰	PTM 55010	200	Cubic in.-min/ft.lbs.hr
Sand Wheel Wear/Abrasion Test		60	UHMW=100
Minimum Mating Surface Hardness		20	Rockwell (Brinnell)
Coefficient of Linear Thermal Expansion	E-831 (TMA)	4.7	in/in/°F x 10 ⁻⁵
Coefficient of Thermal Expansion // to Laminates	E-831 (TMA)	4.7	in/in/°F x 10 ⁻⁵
Coefficient of Thermal Expansion \perp to Laminates	E-831 (TMA)	4.7	in/in/°F x 10 ⁻⁵
Softening Point		250	°F
Heat Deflection Temperature 264 psi	D648	250	°F
Embrittlement Temperature			°F Min.
Continuous Service Temperature in Air		180	°F Max.
Short Term Service Temperature		212	°F Max.
Tg-Glass Transition (Amorphous)	D3418		°F
Melting Point (Crystalline) Peak	D3418	347	°F
Thermal Conductivity	F433	2.5	BTU-in/(hr/ft ² °F)
Dielectric Strength Short Term	D149	450	Volts/mil
Surface Resistivity	D257	>10 ¹³	ohm/cm
Volume Resistivity	D257		ohm/cm
Dielectric Constant, 106 Hz	D150	3.7	
Dissipation Factor, 106 Hz	D150	0.005	
Flammability @ 3.1mm(1/8 in.) UL94	UL94	HB	
Arc Resistance			seconds
Water Absorption, Immersion 24 Hours	D570 (2)	0.2	%
Water Absorption, Immersion Saturation	D570 (2)	0.9	%
Machinability Rating		1	1=easy, 10=difficult
Rod Diameter Availability (Off the Shelf)	.125	60	inches
Sheet Thickness Availability (Off the Shelf)	.030	3.0	inches
Characteristics / Attributes		Rigid / Stiff / Strong / Excellent Machinability	

Thank you for your interest in our materials. All statements, technical information and recommendations presented are in good faith, based upon tests believed to be reliable and practical field experience. Poly-Tech is not responsible for its accuracy or completeness. It is our recommendation and the customer's responsibility to determine the suitability of any material for any given application.