

Acetal/Polyoxymethylene (POM)

TYPICAL PROPERTIES OF ACETALS			
ASTM or UL Test	Property	Copolymer	Homopolymer
PHYSICAL			
D792	Specific gravity	1.41	1.42
D792	Specific volume (in ³ /lb)	19.7	19.5
D570	Water absorption, 24 h, 1/8-in thk (%)	0.22	0.25
MECHANICAL			
D638	Tensile strength* (psi)		
	At 73°F	8,800	10,000
	At 160°F	5,000	6,900
D638	Elongation*	55	40
D638	Tensile modulus (10 ⁵ psi)	4.1	5.2
D790	Flexural strength (psi)	13,000	14,100
D790	Flexural modulus (10 ³ psi)		
	At 73°F	3.75	4.10
	At 160°F	1.80	2.30
D256	Impact strength, Izod (ft-lb/in)		
	Notched	1.3	1.4
	Unnotched	20	24
D671	Fatigue endurance limit, 10 ⁷ cycles (psi)	3,300	4,300
D785	Hardness, Rockwell M	80	94
FRictionAL			
—	Coefficient of friction		
	Self	0.35	0.3
	Against steel	0.15	0.15
THERMAL			
C177	Thermal conductivity (Btu-in/hr-ft ² -°F)	1.6	2.6
D696	Coefficient of thermal expansion -40 to +185°C (10 ⁻⁴ m/m°C)	8.5	10.0
D648	Deflection temperature (°F)		
	At 264 psi	205	277
	At 66 psi	316	300
UL94	Flammability rating	HB	HB
ELECTRICAL			
D149	Dielectric strength, Short time (V/mil)		
	5 mils	2,100	3,000
	20 mils	—	2,000
	90 mils	500	500
D150	Dielectric constant		
	At 1 kHz	3.7	3.7
	At 1 MHz	0.006	0.005
D257	Volume resistivity (ohm-cm)		
	At 73°F, 50% RH	10 ¹⁴	10 ¹⁵
D495	Arc resistance (s), 120 mils	240 (burns)	220 (burns, no tracking)

*At 0.2 in/min loading rate

TYPICAL PROPERTIES OF ACETALS			
ISO or UL Test	Property	Copolymer	Homopolymer
PHYSICAL			
ISO1183	Specific gravity	1.41	1.42
ISO1183	Specific volume (cm ³ /g)	0.709	0.702
ISO62	Water absorption, 24 h, 3 mm thk (%)	0.22	0.25
MECHANICAL			
ISO527	Tensile strength* (MPa)		
	At 23°C	60.67	68.95
	At 70°C	34.47	47.57
ISO527	Elongation*	55	40
ISO527	Tensile modulus (MPa)	2,826	3,858
ISO178	Flexural strength (MPa)	89.63	97.22
ISO178	Flexural modulus (MPa)		
	At 23°C	2,585	2,826
	At 71°C	1,241	1,585
ISO179	Izod impact strength, (J/m)		
	Notched (-40°C)	69	75
	Unnotched (-40°C)	1068	1281
ASTM D671	Fatigue endurance limit, 10 ⁷ cycles (psi)	3,300	4,300
ISO2039	Hardness, Rockwell M	80	94
FRictionAL			
—	Coefficient of friction		
	Self	0.35	0.3
	Against steel	0.15	0.15
THERMAL			
ISO8302	Thermal conductivity W/(mK)	1.1	0.8
ISO11359	Coefficient of thermal expansion -40 to +185°C (10 ⁻⁴ m/m°C)	1.53	1.80
ISO75	Deflection temperature (°C)		
	At 1.80 MPa	96	136
	At 0.45 MPa	158	149
UL94	Flammability rating	HB	HB
ELECTRICAL			
IEC243	Dielectric strength, Short time (kV/mm)		
	0.13 mm	80.77	115.3
	0.51 mm	—	78.4
	2.29 mm	19.65	19.65
IEC250	Dielectric constant		
	At 1 kHz	3.7	3.7
	At 1 MHz	0.006	0.005
IEC93	Volume resistivity (ohm-cm)		
	At 23°C, 50% RH	10 ¹⁴	10 ¹⁵
ASTM D495	Arc resistance (s), 120 mils	240 (burns)	220 (burns, no tracking)

*At 5 mm/min loading rate