

Acetal

High strength, stiff, low friction engineering plastic with good wear properties



Acetal (polyoxymethylene) is a high strength, low friction engineering plastic that has excellent wear properties in both wet and dry environments. Easy to machine, acetal makes an outstanding choice for applications that require complex, tight tolerances.

Acetal Material Options

Homopolymer vs Copolymer – Acetal is available in both homopolymer (Delrin® 150) and copolymer.

- Homopolymer acetal (Delrin®) has superior room temperature strength, stiffness, and toughness.
- Copolymer acetal has excellent performance in continuous high heat and hot water environments. Copolymer acetal also tends to have less porosity than homopolymer acetal.

FDA Compliant Materials – Acetal is available in FDA compliant grades.

Acetal Grades – Acetal is available in a number of grades, including enhanced bearing and wear Delrin® AF, Delrin® 100AF blend, Delrin® AF DE588, and TECAFORM® HPV13. Delrin® 511P is a homopolymer acetal that offers enhanced crystallization characteristics. This higher level of crystallization helps to augment aspects of the physical properties such as fatigue strength, stiffness, and creep resistance. Ask about special formulations that offer medical, metal detectable, x-ray detectable, or static dissipative grades.

Chemical Attack – Acetal is chemically resistant to many fuels and solvents.

Wear Resistance – Acetal offers good wear and abrasion properties.

Acetal is widely used for:

- Bearings and bushings
- Pump and valve parts
- Manifolds
- Gears
- Jigs and fixtures
- Food processing and other packaging machinery parts
- Wear pads
- Electrical components

Performance characteristics:

- Strong and stiff
- Excellent machinability
- Low moisture absorption
- Excellent wear properties in both wet and dry environments
- Low friction
- Good chemical resistance

Common brands:

- Delrin®
- SUSTARIN®
- TECAFORM®

Available in:



TYPICAL PROPERTIES OF ACETAL

	UNITS	ASTM TEST	HOMOPOLYMER ACETAL	COPOLYMER ACETAL	TECAFORM® HPV13 PTFE-FILLED ACETAL	20% GLASS FIBER FILLED HOMOPOLYMER ACETAL
Tensile strength	psi	D638	10,000	9,800	6,800	8,500
Flexural modulus	psi	D790	420,000	370,000	350,000	730,000
Izod impact (notched)	ft-lbs/in of notch	D256	1.5	1.0	0.7	0.8
Heat deflection temperature @ 264 psi	°F	D648	257	230	244	316
Maximum continuous service temperature in air	°F		185	195	185	185
Water absorption (immersion 24 hours)	%	D570	0.25	0.20	0.22	0.25
Coefficient of linear thermal expansion	in/in/°F $\times 10^{-5}$	D696	6.8	6.1	5.1	2.0 - 4.5
Coefficient of friction (dynamic)			0.20	0.21	0.12	0.35

Values may vary according to brand name. Please ask your Curbell Plastics representative for more specific information about an individual brand.