ENGINEERING PLASTIC PRODUCTS

POLYACETAL

Acetal copolymer is rigid and strong with a low coefficient of friction against metals and other plastics. Acetal is creep resistant and ideal for parts where dimensional stability is important. Acetal does not absorb moisture and is resistant to a wide range of solvents; however resistance to strong acids is poor. Its physical properties remain constant in a variety of environments. Low moisture absorption results in excellent dimensional stability for close-tolerance machined parts. In high moisture or submerged applications, Acetal bearings outperform nylon 4 to 1. Acetal is used extensively in traditional “metals” applications where the combination of strength and toughness offer winning advantages.

PROPERTIES:

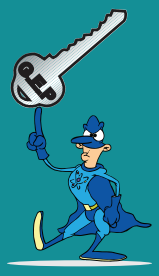
- High mechanical strength, hardness and stiffness.
- Good impact strength at temperatures as low as -40°C.
- Excellent resilience.
- Good creep resistance and very good dimensional stability.
- Good electrical insulating and dielectric properties.
- Good sliding properties and wear resistance.
- Very low moisture absorption (resistance to hydrolysis).
- Good load bearing properties.
- Excellent machining capabilities - ideal for close tolerance parts.
- Acetal meets EU and FDA requirements for food contact applications.

APPLICATIONS:

Acetal is ideally suited for close tolerance mechanical parts which require dimensional stability.

Mechanical engineering, automotive industry, manufacture of chemical equipment: e.g. meter components, sliding elements, gears, control discs, impellers, bearings, pump components, valve bodies, catch elements, coil bodies, bearing cages, clutch parts, pump housings. Acetal can be used in “hot water” applications up to 60°C without any hydrolysis affect.

Gauteng Engineering Plastics
The Right Application is Key



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PROPERTIES	TEST METHOD	UNIT OF MEASURE	SUSTAMID 6 G
GENERAL			
DENISTY	DIN EN ISO 1183-1	g/cm³	1,41
WATER ABSORPTION	DIN EN ISO 62	%	0,20
FLAMABILITY 3mm	UL 94	3mm	HB
FLAMABILITY 6mm	UL 94	6mm	HB
MECHANICAL			
TENSILE STRENGTH	DIN EN ISO 527	MPA	67
ELONGATION AT BREAK	DIN EN ISO 527	%	30
E MODULUS	DIN EN ISO 527	MPA	2 800
NOTCHED IMPACT STRENGTH	DIN EN ISO 179	kJ/m²	6,00
BALL INDENTATION HARDNESS	DIN EN ISO 2039-1	MPA	150
SHORE HARDNESS	DIN EN ISO 868	SCALE D	81
THERMAL			
MELTING TEMPERATURE	ISO 11357-3	^{o}C	165
THERMAL CONDUCTIVITY	DIN 52612-2	W/(m.K)	0,31
SPECIFIC THERMAL CAPACITY	DIN 52612	kJ/(kg.K)	1,5
COEFFICIENT OF LINEAR THERMAL EXPANSION	DIN 53752	10^{-6}K-1	110
LONG TERM SERVICE TEMPERATURE	GUIDELINE ONLY	^{o}C	- 50 TO 100
SHORT TERM SERVICE TEMPERATURE	GUIDELINE ONLY	^{o}C	140
HEAT DEFLECTION TEMPERATURE	DIN EN ISO 75.VERF.A	^{o}C	110
ELECTRICAL			
DIELECTRIC CONSTANT	IEC 60250	N/A	3,8
DIELECTRIC DISSIPATION FACTOR	IEC 60250	N/A	0,002
SPECIFIC VOLUME RESISTIVITY	IEC 60093	Ω.cm	10^13
SURFACE RESISTIVITY	IEC 60093	Ω	10^13
DIELECTRIC STRENGTH	IEC 60243	kV/mm	40

When machining thermoplastic stock shapes, remember...

- Thermal expansion is up to 10 times greater with plastics than metals.
- Plastics lose heat more slowly than metals, so avoid localized overheating.
- Softening (and melting) temperatures of plastics are much lower than metals and plastics are much more elastic than metals.

Getting started

- Positive tool geometries with ground peripheries are recommended.
- HSS/Tip tooling with polished top surfaces is suggested for optimum tool life and surface finish.
- Use adequate chip clearance to prevent clogging.
- Adequately support the material to restrict deflection away from the cutting tool.

Coolants

Coolants are generally not required for most machining operations, but are strongly suggested during drilling operations, especially with notch sensitive materials such as Nylon, PET-P, PAI, PBI and glass or carbon reinforced products.

In addition to minimizing localized part heat-up, coolants prolong tool life. For optimum surface finishes and close tolerances, nonaromatic, water soluble coolants are suggested. General purpose petroleum based cutting fluids, although suitable for many metals and plastics, may contribute to stress cracking of amorphous plastics such as Polycarbonate.

Because of these differences, you may wish to experiment with fixtures, tool materials, angles, speeds and feed rates to obtain optimum results.

GENERAL NOTE:

The data shown fall within the normal parameters of product properties. They should only be used as a guide to initial materia selection for the relevant application and for material specification limits. Further technical information is available for specific application requirements. When no value is listed, insufficient details were available to present a usable value.