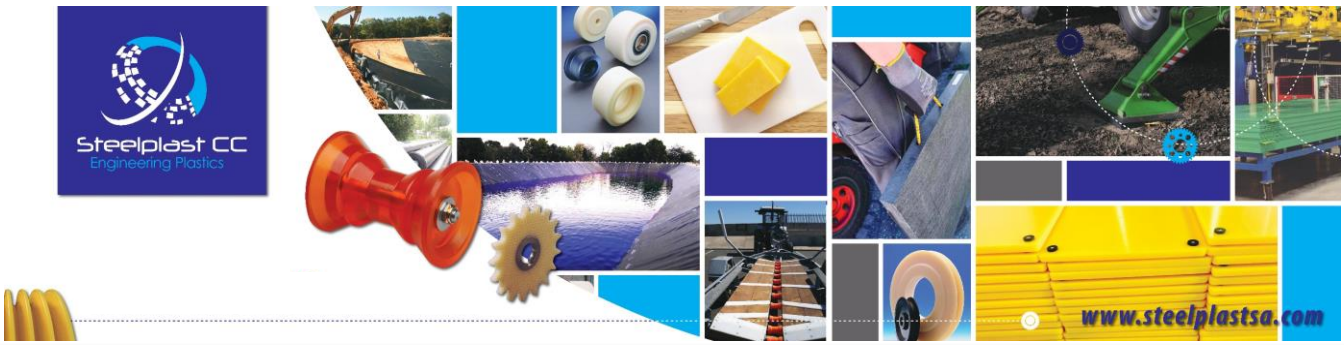

ERTACETAL - POLYACETAL (POM)

Polyacetal is a high crystalline thermoplastic with high strength and rigidity as well as good sliding properties and wear resistance with a low level of moisture absorption. Its good dimensional stability, exceptional fatigue resistance as well as excellent machining properties make Polyacetal a versatile design material also for complex components. POM satisfies high surface finish requirements.

Standard Colours: White / Black

Mechanical Properties		
Density DIN53 479	g/cm³	1.41
Yield Stress DIN53 455	MPa	65
Elongation at break DIN53 455	%	40
Modules of elasticity resulting from **tensile** test DIN53 457	MPa	3,000
Modules of elasticity resulting from **bending** test DIN53 457	MPa	2,900
Flexural strength DIN53 452	MPa	115
Impact strength DIN53 453	KJ/m²	o. B.
Notched-bar impact strength DIN 53 453	KJ/m²	>10
Ball indentation Hardness $H_{358/30}$ DIN53 456	MPa	150
Creep rate stress at 1% elongation DIN53 444	MPa	13
Sliding friction coefficient against steel (dry running) [3]	-	0.32
Sliding wear against steel (dry running) [3]	µm/km	8.9
Thermal Properties		
Melting temperature DIN53 736	°C	+168
Thermal conductivity DIN52 612	W//(k m)	0.31
Specific thermal capacity	J/(g K)	1.45
Coefficient of linear expansion	10^{-5} - K^{-1}	9-10
Operating temperature range (long-term)	°C	-30 +100
Operating temperature range (short-term)	°C	+140
Fire behaviour after UL 94 IEC 60695	-	HB
Electrical Properties		
Dielectric constant DIN53 483	-	3.9
Dielectric loss factor DIN53 483	-	0.003
Specific volume resistance DIN53 482	Ω-cm	10^{15}
Surface resistance DIN53 482	Ω	10^{13}
Dielectric strength DIN53 481	KV/mm	70
Creep resistance DIN53 480	-	KA3c KC> 600
Miscellaneous data		
Moisture absorption in natural Rubber until saturated DIN53 715	W(H_2O)%	0.2
Water absorption until saturated DIN53 495	W_5%	0.8
Specific properties		high strength, impact resistance, low creep behaviour

POM-C otherwise known as Acetal Copolymer is an engineered plastic. The highly crystalline resins are strong, rigid and have a low coefficient of friction in comparison to metals and other plastics. It is also creep resistant and is recommended for applications where dimensional stability is important.

The polymer has good sliding characteristics and resistance to wear, as well as low moisture absorption. The good dimensional stability and particularly good fatigue strength as well as excellent machining ability make POM a highly versatile engineering material, even for complex components.

Properties:
Low coefficient of friction to enhance material flow
Long life sliding abrasion application –
often outlasting steel, Chemical and corrosion resistant
Absorbs noise and impact, Moisture repellent, Shatter resistant • High strength, • High rigidity, • High hardness

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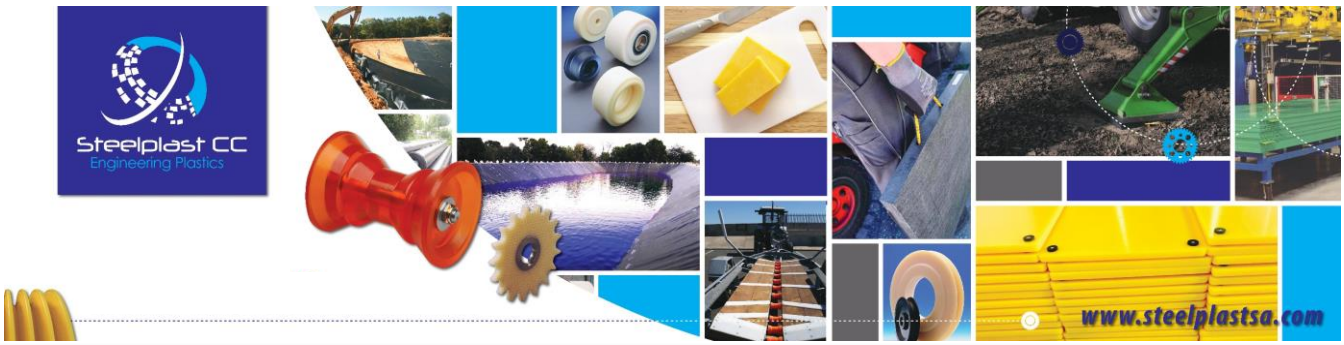

• Good impact resistance, also at low temperatures
• Low level of moisture absorption (at saturation 0.8%)

• Good creep resistance, • High dimensional stability
• Resistant to hydrolysis (up to +60 °C)
• Physiologically safe

Fields of Application:
Bearings and gear wheels
Isolating parts
Precision parts for the mechanical engineering

Sliding properties
POM-C has excellent sliding properties and good wear resistance. Combined with its other outstanding properties, POM-C is well suited for use in sliding applications at medium to high loads. This also applies to applications where high levels of humidity or moisture are expected. Due to the closely spaced static and dynamic coefficient of friction low starting torques can be implemented

Weathering effects- POM-C is not resistant to UV rays. The surface oxidizes when subjected to UV radiation in combination with oxygen and becomes stained or dull. With long-term exposure to UV radiation, the material tends to become brittle.

Chemical resistance - POM is resistant to weak acids, weak and strong alkaline solutions, organic solvents and petrol, benzene, oils and alcohols. POM-C is not resistant to strong acids (pH < 4) or oxidising materials.

Behaviour in fire - POM-C is rated as normal flammable. When the source of ignition is removed, POM-C continues to burn, forming droplets. During thermal decomposition, formaldehyde can form. The oxygen index (= the oxygen concentration required for combustion) at 15% is very low compared to other plastics.

Machining - POM-C develops a fragmented chip and is thus ideally suited for machining on automatic lathes, but it is also possible to machine it on cutting machine tools. The semi-finished products can be drilled, milled, sawed, planed and turned on a lathe. It is also possible to cut threads or insert threaded parts in the material. Generally, no cooling or lubricating emulsion is necessary. To limit material deformation due to internal residual stress in semi-finished products, the parts should always be machined from the geometrical centre of the semi-finished product, removing an even quantity of material from all sides. If maximum dimensional stability is demanded from the finished components, the parts to be manufactured should be rough pre-machined and stored for an interim period or heat treated. The parts can then be completed.

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