MOCOM

Alcom® WP
Wear Protect
Running smoothly

Alcom® Wear Protect represents a comprehensive portfolio of compounds with optimized low friction and abrasion properties. The plastics extend the lifespan of parts subjected to mechanical loads and eliminate the need for additional lubrication.

Compounds in the Alcom® Wear Protect series are based on different thermoplastics (PA, PBT, PC, PC+ABS, POM, PPS etc.). The use of high-quality special fillers improves the tribological characteristics of the plastics in their final application, making them less susceptible to wear.

- PTFE that is subjected to friction forms a lubricating film between the two sliding components. This reduces the “stick-slip” phenomenon.
- Silicone forms a lubricating film on the surface. It reduces screeching noises and, in combination with other fillers, the coefficient of friction.
- Molybdenum disulfide (MoS_2) is used for improved sliding frictional behavior as a solid lubricant in partially crystallized plastics such as PA, POM.
- Aramid is extremely wear resistant and ensures a good sliding behavior in combination with other fillers.
- Graphite is particularly effective both in and under water. It works excellent as a sliding friction modifier.
- Carbon fibers increase stiffness and strength. They act as a sliding friction modification and dissipate any electric charges that are built up by friction.
- Special fillers for non-reinforced plastics are alternatives to PTFE or molybdenum disulfide because they are characterized with better mechanical properties and low deposits in the tool.

Alcom® Wear Protect: the advantages at a glance

- **Reduced wear**
- **Improved sliding friction behavior**
- **Longer lifespan**
- **Smoother running, lower development of noise**
- **Improved emergency running characteristics**
- **Lower energy consumption**
- **Allows complex part geometries**
- **Weight reduction**

Polymer	Material name	Filler	Load pv-product (MPa*m/s)	Linear wear rate w (µm/h)	Static friction coefficient μ_H	Sliding friction coefficient µ	Example applications	Special properties
PA66	PA66 unfilled	unfilled	5*1	60	0.54	0.92	–	Parts mechanically highly stressed with good friction, sliding properties and low abrasion. Metals are suitable as sliding partners among others.
	Alcom® PA66 910/1 MO2 NC	2 % molybdenum disulfide	2*1	21	–	0.6	Damping plate	
	Alcom® PA66 910/1 GB30 MO2 BK	30 % glass balls 2 % molybdenum disulfide	–	–	–	–	Gear, pinion	
	Alcom® PA66 910/1 GF30 PTFE15 BK	30 % glass fibers 15 % PTFE	5*1	19	0.32	0.4	Child protection switches, guide bushings for chair mechanisms, flanges, parts for sliding blocks in door closers & door hinges, slide controllers/timer switches	
	Alcom® PA66 910/1 GF30 PTFE15 SI2 NC	30 % glass fibers 15 % PTFE 2 % silicone	5*1	21.9	0.19	0.39	Bearing bracket, air vent controls	
	Alcom® PA66 910/1.1 CF10	10 % carbon fibers	5*1	5.9	0.31	0.26	Power drill mountings, adapters for domestic appliance	
	Alcom® PA66 910/1.1 AR10 CF10	10 % carbon fibers 10 % aramid	5*1	6.7	0.31	0.25	Bushings, slide rails	
	Alcom® PA66 910/1.1 CF10PTFE10 BK	10 % carbon fibers 10 % PTFE	5*1	6.6	0.3	0.25	Parts for sliding roof panel	
POM	POM unfilled	unfilled	5*1	22	0.19	0.51	–	Extraordinary sliding properties with high dimensional stability. It is often used for gears and other applications where high dimensional stability is essential. Metals are suitable as sliding partners among others.
	Alcom® POM 770/1 MO2 NC	2 % molybdenum disulfide	5*1	14	0.19	0.37	Gearwheels, sliding elements, seal retaining ring for ball valve, chair parts, Bowden pull wires (extruded hose)	
	Alcom® POM 770/1 PTFE15 BK	15 % PTFE	5*1	9	0.16	0.25	Hinge elements, control levers, locking disks, tappets, pump components, parts for windows/roller blinds, gearwheels	
	Alcom® POM 770/1 PTFE18 SI2 NC	18 % PTFE 2 % silicone	–	–	–	–	–	
	Alcom® WP POM 5020 TF 18029 NC	10 % PTFE 10 % aramid	5*1	4.5	0.18	0.27	Bearing shells, washers, sleeves, slide bushings, sliding for clutch and brake pedal	
PBT	PBT unfilled	unfilled	5*1	266	0.2	0.54	–	Applications in the electrical industry and for housings. Good sliding partner towards PA and POM.
	Alcom® PBT 700/1 GF30 PTFE15 BK	30 % glass fibers 15 % PTFE	5*1	27	0.23	0.3	Seat adjustment switches in passenger cars, pointers for industrial manometers	
	Alcom® PBT 700/1 GF30 PTFE15 SI2 NC	30 % glass fibers 15 % PTFE 2 % silicone	5*1	21	0.19	0.28	–	
PC	PC unfilled	unfilled	3*1	>100000	0.49	>0.49	–	Good thermal stability with good isolation properties (except filled with carbon fibers), with modification better sliding and friction properties are obtained.
	Alcom® PC 740/1 PTFE10 BK	10 % PTFE	–	–	–	–	Seat belt holder	
	Alcom® PC 740/1.2 GF30 PTFE13SI2 BK	30 % glass fibers 13 % PTFE 2 % silicone	–	–	–	–	–	
	Alcom® PC 740/3162.1 CF10GF10TF10 BK	10 % carbon fibers 10 % glass fibers 10 % PTFE	3*1	3.1	0.18	0.3	Wear plates, housing parts	
PPS	PPS GF reinforced, not modified for sliding/friction	40 % glass fibers	5*1	494	0.27	0.46	–	High performance thermoplastic for usage in high temperatures. Especially suitable for usage under medium, due to excellent chemical resistance, in combination with carbon fibers particularly suitable for under water application.
	Tedur® L 9401-1	40 % Glasfaser 5 % PTFE	5*1	14.8	0.27	0.36	Tappets, housing parts for engine compartments and mechanical engineering	
	Tedur® L 9412-3.2 NC	10 % carbon fibers 10 % graphite 10 % PTFE	–	–	–	–	–	

Additional products and information available on request. The measurements are provided based on the “block on ring” principle in line with the ASTM G 137 standard. The procedure is used to determine friction and wear on simple test pieces, taking into account existing fiber alignment. The test piece is tested at a defined force and speed as well as with defined needle bearing inner rings as an opposing body (referred to as the pv parameter and important for bearing applications). As a result, the frictional wear (“wear rate *w*”) and the frictional resistance (“coefficient of sliding friction µ”) are determined.

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