

APPLICATIONS IN FOCUS

TRIBOLOGY

THE PRODUCT PORTFOLIO FOR
TRIBOLOGICAL APPLICATIONS



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POLYMER GROUP



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Optimal solutions for your tribology requirement!

The durability of tribologically stressed molded plastic parts is determined by friction behavior and wear resistance, among others. Our tribologically modified products are the optimal solutions here for significantly reducing noise development and greatly prolonging the durability of components. We can offer you the ideal product for your challenge - even if there are special conditions in terms of sliding speed, normal force, temperature and other environmental influences.

PTFE-modified TEREZ compounds offer unique chemical coupling for highest tribology requirements

PTFE-modified products offer an excellent properties profile for these requirements. The sliding motion creates tiny wear particles which absorb to the sliding partners and lead to a self-lubricating effect. TEREZ PERFORMANCE POLYMERS has a unique, patented process for the chemical coupling of polytetrafluorethylene (PTFE) to polyamide 6, polyamide 66. These chemically coupled TEREZ PTFE compounds open up a broad bandwidth of innovative applications that are centered around tribologic properties - which practically are wear-resistant. Because of the chemical coupling, abrasion or a shredding of the PTFE molecules that usually occurs with PTFE-optimized product solutions cannot occur. The surface remains permanently slide-friction-optimized. An additional optimization of the mechanical parameters of such PA/PTFE compounds results in combination with nano fillers.

TEREZ PTFE compounds: a new class of tribology materials

The TEREZ PA/PTFE compounds stand for a new class of tribology materials. While friction factors are not significantly different from other commercial PA/PTFE products, the TEREZ materials exhibit a significantly higher wear resistance that leads to a substantial increase of the manufactured components' durability. The chemically coupled TEREZ-PTFE compounds are therefore the ideal solution for slide bearings, moving and transportation systems, gears or ball bearing cages. The compounds are available with between 7.5 and 50 percent of a chemically coupled PTFE.

Our product portfolio for medium slide speeds and low to high surface pressures

Our product offering includes numerous additional tribology products, such as Duracon (POM) of Polyplastics. In addition to PTFE modifications, the products are also available with MOS₂ mineral fillers. UHMWPE modifications are also available. The stick slip decline can be avoided using silicone additives.

Tribology applications in the high-temperature range

The tribologically modified products of DSM based on PA 4.6 under the brand name Stanyl exhibit an excellent property profile at high usage temperatures and high surface pressures. Due to the high crystallinity and high melting point of the carrier material PA 4.6, property profiles are achieved that cannot be reached using a PA 66. Additional high-temperature polymers within the TER Plastics portfolio are TEREZ PA 4.6 and PPA with the already described technology of the chemically coupled PTFE.



| | Manufacturer | Brand (Polymer) | Types | Key features of the product | Example applications |
|---------------------------|--------------|---------------------------|---|--|---|
| HIGH-PERFORMANCE POLYMERS | DSM | Stanyl (PA46) | Stanyl HGR2 Stanyl TW371 Stanyl TE373 Stanyl TW271B3 Stanyl TW271B6 Stanyl TW271F6 | Good mechanical properties in combination with high rigidity, good fatigue and ductility at high and low temperatures, chemical resistance against greases and oils | Chain tensioners, slide shoe, bar guide, roller bearing cage |
| | Polyplastics | Durafide (PPS) | Durafide 2130A1 Durafide 6345A4 Durafide 7140A4 | Dimensional stability at high temperatures, very good chemical resistance, high rigidity, good sliding friction behavior, inherently flame-resistant, high surface quality can be achieved | Fuel injection systems, wing pump wheel, measuring instruments, components of heat exchangers, air flaps, hot air sockets, coupling elements, valve covers |
| | TPP | TEREZ (PA46) | Terez PA46 7115 TF15/1 Terez PA46 7115 TF22,5 Terez PA46 7115 TF30 N Terez PA46 7115 TF25 MF5 N | Chemical coupling of the PTFE, low stick-slip effect, fine distribution of the PTFE particles, reduced susceptibility against oils and greases, improved friction coefficient, high heat deflection temperature | Transport chains, chain tensioners, slide shoe, bar guide, roller bearing cage |
| | TPP | TEREZ HT (PPA) | Terez HT 100 H G40 TF15 Terez HT 200 H G30 TF15 Terez HTE 300 H G30 TF15 | Chemical coupling of the PTFE, low stick-slip effect, reduced susceptibility against oils and greases, improved friction coefficient, rigid and firm at high application temperatures, dimensional stability, low water absorption | Sliding components, guide rails, running rails, bearing blocks |
| | TPP | TEREZ GT2 (PA-MXD6) | Terez GT2 300 H G30 TF10 Terez GT2 300 H G30 TF15 | Chemical coupling of the PTFE, low stick-slip effect, reduced susceptibility against oils and greases, improved friction coefficient, low water absorption, high mechanical stability, very low creep tendency | Toothed wheels, sliding components, pump sliding components |
| | TPP | TEREZ GT3 (PA66+6) | Terez GT3 300 H G30 TF15 Terez GT3 300 H G40 TF15 | Chemical coupling of the PTFE, low stick-slip effect, fine distribution of the PTFE particles, reduced susceptibility against oils and greases, improved friction coefficient | Sliding modules, bearing cages, sliding chains, pump housings |
| ENGINEERING POLYMERS | Polyplastics | Duracon (POM Copolymer) | Duracon YF-5, -10, -20 Duracon NW-02 Duracon AW-01, -09 Duracon SW-01 Duracon MS-02 Duracon JW-03 Duracon TW-31, -51 Duracon PW-01LV | Good sliding friction behavior, resistant against abrasion, very low outgassing behavior, good resistance against chemicals, easy processability without films, good acoustic properties with low stick-slip effect | Sliding chains, sliding bearings, sliding components, toothed wheels, rotatable connector for air bags, slide bushings, adjustment levers, switches, kinematics, wheels, HVAC |
| | Grupa Azoty | Tarnoform (POM Copolymer) | Tarnoform T300 TF2, 4, 6 Tarnoform T300 WD Tarnoform T300 DW | Good sliding friction behavior, good spring characteristics, high flexural strength, good toughness even at low temperatures | Sliding chains, slide bearings, sliding components, toothed wheels |
| | TPP | TEREZ (PA6) | Terez PA6 7500 TF15 GF30 Terez PA6 7500 TF20 GF20 | Good toughness even at low temperatures, chemical coupling of the PTFE, low stick-slip effect, reduced susceptibility against oils and greases, improved friction coefficient, easy and quick processing | Rollers, track rollers, running sockets, transport chains |
| | TPP | TEREZ (PA66) | Terez PA66 7500 TF15 H Terez PA66 7500 TF15 UV Terez PA66 7500 TF20 GF30 Terez PA66 7500 TF15 GF40 | Very good electrical insulation properties, easy and quick processing, chemical coupling of the PTFE, low stick-slip effect, reduced susceptibility against oils and greases, improved friction coefficient | Adjustment levers fans, (car interiors), bearings, toothed wheels, control disks, transmission elements |
| | TPP | TEREZ (PA66/6) | Terez PA66/6 7500 TF15 GF30 Terez PA66/6 7500 TF15 GF40 | Chemical coupling of the PTFE, longer life cycle, low stick-slip effect, fine distribution of the PTFE particles, reduced susceptibility against oils and greases, improved friction coefficient | Adjustment levers fans, (car interiors), bearings, toothed wheels, control disks, transmission elements |
| | TPP | TEREZ (PBT) | Terez PBT 7500 TF20 Terez PBT 7500 TF15 GF30 | Advantageous sliding friction behavior, good electrical insulation properties, good heat aging behavior, good toughness even at low temperatures, high yellowing resistance | Switch elements, controller drums, number rollers |
| | TPP | TEREZ (PET) | Terez PET 7500 TF 15 H | High dimensional accuracy, excellent sliding and abrasion behavior, resistant against tension cracks, improved dimensional stability under heat | Pressure piece, bra wires, valve cones, contact carriers |
| | TPP | TEREZ (POM Copolymer) | Terez POM 6001 TF Terez POM 8005 TF10 Terez POM 6005 TF10 GF30 | Good sliding friction behavior, resistant against abrasion, very low outgassing behavior, good resistance against chemicals, easy processing without films | Sliding chains, slide bearings, sliding components, toothed wheels for precision engineering |
| | TPP | TEREZ (PA6.10) | Terez PA6.10 7500 TF20 Terez PA6.10 7500 TF15 GF30 | Reduced water absorption, chemical coupling of the PTFE, low stick-slip effect, reduced susceptibility against oils and greases, improved friction coefficient, good resistance against abrasion, high toughness. | Gear components, gear racks, safety belt components, sliding components of water meters |

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