



SKF Engineered Plastics

ID	GeneralDescription
ECOFLAS	<p>VITON / PTFE</p> <p>SKF Ecoflas is a unique fluoroelastomer based on an alternating co-polymer of tetrafluoroethylene and propylene (TFE/P). This material is chemically related to fluororubber.</p> <p>SKF Ecoflas has the following properties:</p> <ul style="list-style-type: none">• high resistance to mineral oils• outstanding resistance to hot water and hot steam up to 230°C• excellent resistance to sour gas and amines• excellent resistance to brake fluids (based on glycol, mineral oil or silicon oil) and fire-resistant hydraulic fluids)• good radiation resistance <p>Compared to fluororubber materials, SKF Ecoflas shows slightly higher tensile strength and a similar heat resistance.</p>
ECOFLON 1	<p>PTFE-VIRGIN</p> <p>SKF Ecoflon 1 is a thermoplastic material based on polytetrafluoroethylene (PTFE-virgin), which is used for back-up rings, packings, O-rings, rotary seals and gaskets. SKF Ecoflon 1 has the widest application range of all sealing materials. SKF Ecoflon 1 has an outstanding chemical resistance. When using PTFE for seals, the creeping behaviour of PTFE has to be considered. SKF Ecoflon 1 complies with FDA regulations.</p>
ECOFLON 2	<p>PTFE + GLASS FIBERS + MOLYBDENUM</p> <p>SKF Ecoflon 2 is a polytetrafluoroethylene filled with glass fibres and molybdenum disulphide (PTFE with fillers) and can be used for U-cups, glide rings, back-up rings, packings and guide rings. SKF Ecoflon 2 has good physical properties and significantly better creeping behaviour than virgin PTFE. The chemical resistance is similar to virgin PTFE.</p>
ECOFLON 3	<p>PTFE + 40% BRONZE</p> <p>SKF Ecoflon 3 (PTFE +40% bronze) exhibits improved compression strength sliding properties as well as an improved thermal conductivity in comparison to virgin PTFE.</p>
ECOFLON 3F	<p>PTFE + 40% BRONZE</p> <p>SKF Ecoflon 3F (PTFE +40% bronze) has, compared to SKF Ecoflon 3, improved wear and abrasion resistance and is colored green.</p>
ECOFLON 4	<p>PTFE + 25% CARBON</p> <p>SKF Ecoflon 4 (PTFE +25% carbon) shows improved mechanical strength, stiffness and hardness as well as improved sliding properties in comparison to virgin PTFE.</p>
ECOFLON 5	<p>PTFE MODIFIED (FOOD)</p> <p>SKF Ecoflon 5 (PTFE modified) exhibits improved wear and abrasion resistance in comparison to SKF Ecoflon 1. The material is suitable for food and beverage applications.</p>
ECOMID	<p>POLYAMIDE</p>



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ECOPEAK	<p>PEEK</p> <p>SKF Ecomid (PA) is a cast polyamide with good sliding properties and is used for back-up rings, guide rings and bearing components for diameters above 260 mm. SKF Ecomid can be used in mineral oils and water-based fire-resistant hydraulic fluids. When designing components using SKF Ecomid for an application in water or water-based fluids, the swelling of the material (SKF Ecomid absorbs water up to eight weight percent) must be taken into account.</p>
ECOPPS	<p>POLY PHENYLENE SULFIDE</p> <p>SKF Ecopaek (PEEK) is a polymer with high tensile strength, stiffness, high heat distortion temperature and good sliding and friction properties. As far as strength and stiffness are concerned, SKF Ecopaek exceeds most technical plastics, especially at high temperatures.</p> <p>SKF Ecopps is a partially crystalline material based on poly-phenylene sulfide (PPS) and has an outstanding hardness and modulus, high chemical and thermal resistance. The chemical and ionizing radiation resistance of SKF Ecopps is excellent and the maximum recommended service temperature is about 220°C for long term applications, although it will withstand 260°C for short periods of time.</p>
ECOPUR	<p>POLYURETHENE</p> <p>ECOPUR is a thermoplastic polyurethane elastomer (TPU), which has an unusually high abrasive resistance, low compression set, high physical properties and tear strength. In sealing technology ECOPUR is mostly used for U-cups, lip seals, wipers and packings, but it may also be used for dampers and other machined parts. Products made from this material can be used in mineral oil, in water up to 40°C and in bio-degradable hydraulic oils like vegetable oils and synthetic esters up to 60°C. Depending on the seal design and the housing conditions seals made of ECOPUR can be used up to 400 bar (for high pressure demands, experts from SKF recommend to use anti-extrusion-rings).</p>
ECORUBBER 1	<p>NBR</p> <p>SKF Ecorubber-1 is an elastomer based on acrylonitrile-butadiene rubber (NBR), which is used for U-cups, packings, special seals and various components. This material has good resistance to mineral oils, greases and HFA, HFB and HFC pressure fluids. However, the material is not resistant to glycol-based fluids, HFD fluids, aromatic fluids (such as benzene), esters, ketones and amines or concentrated acids and bases.</p>
ECORUBBER 2	<p>VITON / FPM / FKM</p> <p>SKF Ecorubber-2 is an elastomer based on fluororubber (FPM, FKM) can be used for U-cups, lip seals, packings, wipers and special seals. Its outstanding properties include high resistance to heat, ozone, many chemicals and it is all-weather-proof. SKF Ecorubber-2 is compatible with mineral oils and greases containing sulphur, HFD pressure fluids (nearly all phosphate esters and chlorinated hydrocarbons), crude oil and sour gas. SKF Ecorubber-2 is not resistant to anhydrous ammonia, amines, ketones, esters, hot water and low molecular weight organic acids.</p>
ECORUBBER 3	<p>EPDM</p> <p>SKF Ecorubber-3 is an elastomer based on ethylene-propylene-diene rubber (EPDM), which can be used for U-cups, lip seals and packings. SKF Ecorubber-3 has an outstanding resistance to hot water, steam, washing agents and polar organic solvents. SKF Ecorubber-3 is not resistant to mineral oil and other unpolar media. The stability to weathering, ozone and ageing is good. If used in glycol-based brake fluids, national regulations have to be adhered to.</p>



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ECORUBBER H	<p>HYDROGENATED NBR</p> <p>SKF Ecorubber-H is a hydrogenated or saturated acrylonitrile-butadiene rubber (H-NBR), which is suitable for applications at higher service temperatures in aliphatic hydrocarbons like propane or butane, mineral oils, greases as well as sulfonated crude oil. Furthermore, it can be used in many diluted acids, bases, salt solutions and glycol-water mixtures. SKF Ecorubber-H is not compatible with fuels, which have a high content of aromatic hydrocarbons (premium blend petrol), gasolines (petrol / alcohol blends), ketones, esters, ethers and chlorinated hydrocarbons like trichloroethylene and tetrachloroethylene.</p>
ECOTAL	<p>POLYACETAL COPOLYMER</p> <p>SKF Ecotal is a semi-crystalline polyacetal-copolymer (POM), which is used for anti-extrusion rings, guide ring bushes, scrapers and for precision-machined parts with tight tolerances. SKF Ecotal is one of the most important engineering thermoplastics with good physical properties, low water absorption and good chemical resistance. SKF Ecotal can be used in mineral oils, in water-based fire-resistant hydraulic fluids (HFA, HFB and HFC fluids). In direct contact with acids and bases limited chemical resistance must be taken into consideration.</p>
ECOTEX	<p>POLYESTER / GRAPHITE</p> <p>SKF Ecotex is a compound based on a thermosetting polyester resin and reinforced with fabric inlays. Due to the addition of graphite, the material shows very good characteristics in respect to the tribological requirements of bearing materials in gliding systems. SKF Ecotex shows high compression strength and outstanding friction and wear properties. Therefore, it is very well suited for guide rings and bearing bushes. Due to the very low absorption of moisture, SKF Ecotex is particularly suitable for use in water and water-containing media (swelling in water <0,1 %)</p>
ECOWEAR 1000	<p>POLY ETHYLENE</p> <p>SKF Ecowear 1000 is a semi crystalline thermoplastic material based on ultrahigh molecular weight polyethylene (UHMW-PE) with the following properties:</p> <ul style="list-style-type: none"> • low co-efficient of friction • excellent wear resistance • high impact strength (also at low temperature down to -200 °C) • very high creep resistance • water-repellent • no swelling <p>SKF Ecowear 1000 is suitable for applications where outstanding sliding, wear or dry running properties.</p>
EOCSIL	<p>SILICONE RUBBER</p> <p>SKF Ecosil is a silicone rubber (MVQ), which can be used for O-rings, gaskets and special seals. Due to its poor mechanical properties compared to other rubbers, SKF Ecosil is mainly used for static applications. It is highly resistant to weathering, ozone and ageing. The compatibility with mineral oils depends on the content of aromatic hydrocarbons in the oil.</p>
G-ECOPUR	<p>POLYURETHANE HYDROLYSIS-RESISTANT</p> <p>G-ECOPUR is a casted hydrolysis-resistant polyurethane-elastomer (CPU) with similar properties to H-ECOPUR, especially regarding its chemical stability. G-ECOPUR can be used in the same hydraulic fluids as H-ECOPUR. Generally, G-ECOPUR is used for seals with a diameter from 540 mm up to 4000 mm as one piece and larger using our special welding technique.</p>



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H-ECOPUR	<p>POLYURETHANE HYDROLYSIS-RESISTANT</p> <p>H-ECOPUR is a hydrolysis-resistant thermoplastic polyurethane elastomer (TPU). It combines the engineering properties of ECOPUR with a high resistance to hydrolysis which is otherwise rarely found in polyurethanes. It is stable in water up to +90°C and has an outstanding stability in mineral oil. Because of its resistance to hydrolysis H-ECOPUR can be used for water hydraulic and for applications in mining, tunnelling and presses. H-ECOPUR is particularly recommended for the use in pure and seawater, for HFA and HFB fluids and biologically degradable hydraulic fluids (vegetable oils and synthetic esters) and food articles. H-ECOPUR meets the FDA standards.</p>
HELICOL SPRING	
MEANDER SRPING	
NA	NA
NA	NA
NBR70	
S-ECOPUR	<p>S-ECOPUR (TPU) has been optimized with regard to the tribological characteristics friction and wear. This was achieved by the addition of a synergetic combination of solid lubricants. This special material is therefore best suitable for most severe applications in the water hydraulics and oil-free pneumatics.</p>
T-ECOPUR	<p>LOW TEMPERATURE POLYURETHANE</p> <p>T-ECOPUR (TPU) is modified for low temperature applications. The properties of T-ECOPUR are similar to those of ECOPUR, but the minimum service temperature is extended to -50°C. For that reason T-ECOPUR is most suitable for applications in severe climatic conditions and processes for frozen goods.</p>
TENSION SPRING	
TENSION SPRING LOCK	
X-ECOPUR	<p>POLYURETHENE</p> <p>The composition of X-ECOPUR (TPU) provides outstanding friction and wear properties as well as high pressure resistance. Therefore the material is well suited for the use as a composite seal, for wipers working in heavy-duty applications as well as for engineered plastic parts that require high elasticity and superior resilience.</p> <p>Due to the exceptional extrusion resistance, seals made of this material work at higher pressure level and larger clearance, than those made of standard polyurethanes and PTFE compounds.</p>
X-ECOPUR GRADES	POLYURETHENE



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	<p>The X-ECOPUR polyurethanes are harder grades of ECOPUR.</p> <p>Compared to standard materials, harder grades show nearly the same tensile strength and elongation at break at a considerably higher 100%-modulus of strain, as well as higher tear strength. The tensile set is for instance on the same level as with standard materials. X-ECOPUR versions have higher extrusion resistance than standard polyurethanes and therefore allow higher pressure at same geometries. The X-ECOPUR grades have increased wear resistance, extended lifetime and a dramatically reduced tendency to stick-slip compared to standard polyurethanes.</p>
XG-ECOPUR	POLYURETHENE <p>XG-ECOPUR is a casted hard grade hydrolysis resistant polyurethane (CPU) most suitable for heavy duty large diameter applications. It has comparable chemical and mechanical properties to G-ECOPUR but with higher shore hardness and improved friction and wear characteristics.</p>
XH-ECOPUR	POLYURETHENE <p>Compared to the standard grade H-ECOPUR, XH-ECOPUR (TPU) has a significantly higher hardness. The composition of the material based on special raw materials provides outstanding friction and wear characteristics as well as pressure resistance. This material exhibits an outstanding chemical and hydrolysis resistance for applications in mineral oil, biodegradable hydraulic fluids (HETG and HEES, etc) and water based fluids (HFA and HFB).</p>
XS-ECOPUR	POLYURETHENE <p>Compared to the S-ECOPUR standard material, XS-ECOPUR (TPU) is harder and therefore further improves sliding properties. XS-ECOPUR has a better extrusion resistance than the standard material and therefore seals made of this material can be used at higher pressure, assuming the same profiles are used. XS-ECOPUR is most suitable for poor lubricated working conditions. The material can also withstand dry-running depending on the overall service conditions.</p>