POLY HI SOLIDUR

TIVAR®

Engineering Polymers

POLY HI SOLIDUR WORLDWIDE

POLY HI
SOLIDUR
WORLDWIDE

content

STRONG PARTNERS FOR ENGINEERING POLYMERS

TIVAR® materials are engineering polymers based on PE-UHMW (Ultra-High Molecular Weight Polyethylene) used to solve problems related to friction, wear, material flow and corrosion. For more than 35 years, we at Poly Hi Solidur have been developing and producing engineering polymers based on PE-UHMW. Modification and innovation of materials based on individual customer requirements and applications are a focus of our business. In addition to the well known brand names RCH® 1000, solidur® and TIVAR®, we have developed modified polymers based on PE-UHMW to solve individual engineering problems. Today, all materials of the worldwide Poly Hi Solidur group are categorised under the international trade name TIVAR® as one product family. TIVAR® engineering polymers are produced using state-of-the-art compression moulding technology and ram extrusion. Polymer know-how and modern production technology are prerequisites for the functionality, quality and economics of TIVAR® materials. We offer custom solutions with fabricated parts and components made from TIVAR® materials. Close cooperation with our customers allows application oriented product development, innovation and thus success for our customers. TIVAR® materials have a solid performance record in numerous industries such as: filling and packaging industry, general mechanical engineering, chemical industry, paper industry, nuclear industry, medical and electrical applications.

RELIABILITY

Engineering polymers produced by Poly Hi Solidur have proven their reliability in a wide variety of industries to solve problems related to friction, wear, material flow and corrosion. RCH® 1000, solidur® and TIVAR® are materials that have given Poly Hi Solidur a worldwide reputation as the leading manufacturer of semi-finished shapes and fabricated parts made from PE-UHMW. Solidur® especially has a long record supporting the development of numerous engineering applications, and laying the groundwork to establish solidur® and TIVAR® as preferred engineering polymers based on PE-UHMW. Key characteristics of TIVAR® engineering polymers include excellent sliding properties, outstanding wear resistance, enormous impact strength, very good chemical and corrosion resistance.

INNOVATION

Poly Hi Solidur excels in the optimising and continued development of the TIVAR® materials tailored to individual requirements. Polymer know-how, modern processing technology as well as close cooperation with our customers represent the key to providing application-specific solutions. The result is TIVAR® materials with improved sliding properties and wear resistance such as Ceram P, SuperPlus, Special DS, DrySilde and Oil Filled, materials with improved temperature and oxidation resistance or anti-microbial effect [TIVAR® H.O.T. and TIVAR® 1000 anti-microbial], TIVAR® FlamEx as flame retardent material and TIVAR® 88 as lining material.

FUTURE THROUGH TECHNOLOGY AND COMPETENCE

Poly Hi Solidur gears for the future by continuously investing in the latest processing technologies for TIVAR® materials. State-of-the-art compression moulding technology, ram extrusion and fabrication centres are core to delivering quality, innovation and economics of engineering polymers based on PE-UHMW. Our driving force to the future are the employees of Poly Hi Solidur: more than 1000 people in a network of companies on four continents service our customers to shape the future as a reliable and competent partner.

SERVICE

Engineering support, flexibility and speed are among the most important prerequisites to meeting customers' needs. On-site engineering support, local fabrication and distribution centres for semi-finished products and fabricated parts made from TIVAR® materials ensure a high service level.

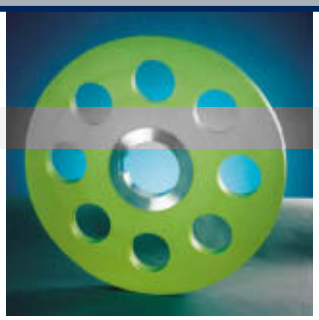
TIVAR® MATERIALS HAVE SOLID PERFORMANCE RECORD IN NUMEROUS MARKETS SUCH AS:

Filling and packaging industry I Food processing I Environmental technology I Conveying, assembly and material handling industries I Bulk material handling industry I Paper industry I Nuclear industry Port construction and offshore platforms I Chemical industry I Medical industry

PROVEN AND INNOVATIVE
TIVAR® MATERIALS SURVEY

TIVAR® MATERIALS

	TIVAR®-DESIGNATION	MATERIAL CATEGORY
	TIVAR® 1000	PE-UHMW
	TIVAR® 1000 anti-static	PE-UHMW anti-static
	TIVAR® 1000 UV-stabilised	PE-UHMW UV-stabilised
	TIVAR® 1000 anti-microbial	PE-UHMW anti-microbial
	TIVAR® 1000 MoS_2	PE-UHMW with MoS_2 as solid lubricant
	TIVAR® 1000 BOR	PE-UHMW with boron based additives as shielding material in the nuclear industry
	TIVAR® 1000 with reprocessed content	PE-UHMW with reprocessed content
	RCH® 1000	PE-UHMW for orthopaedic applications
	RCH® 500	PE-HMW for orthopaedic applications
[Standard materials]	PE 500	PE-HMW
	PE 500 with reprocessed content	PE-HMW with reprocessed content
	PE 300	PE-HD



TIVAR® MATERIALS

TIVAR®-DESIGNATION	MATERIAL CATEGORY
TIVAR® Ceram P	modified PE-UHMW [optimised wear properties]
TIVAR® SuperPlus	modified PE-UHMW [partially cross-linked, optimised wear properties]
TIVAR® Special DS	modified PE-UHMW [optimised wear and sliding properties]
TIVAR® DrySlide	modified PE-UHMW [optimised sliding properties, self-lubricant]
TIVAR® Oil Filled	modified PE-UHMW [optimised sliding properties]
TIVAR® CleanStat	modified PE-UHMW [anti-static, food approved]
TIVAR® H.O.T.	modified PE-UHMW [inhibits oxidation process, increased resistance at higher temperature ranges]
TIVAR® FlamEx	modified PE-UHMW [flame retardent]
TIVAR® 88	lining material [optimised wear and sliding properties]
TIVAR® BlueLine	PE-UHMW [good sliding and wear properties]
TIVAR® Rubber-backed	PE-UHMW [composite material formed from PE-UHMW and rubber]
CHIRULEN® compression moulded	medical grade PE-UHMW, acc. to ISO 5834 and ASTM F 648 [high purity, biocompatible]
TIVAR® Premium ram extruded	medical grade PE-UHMW, acc. to ISO 5834 and ASTM F 648 [high purity, biocompatible]

TIVAR® 1000

TIVAR® 1000 | PE-UHMW

[Custom colours]

[Product description]

TIVAR® 1000 is an engineered PE-UHMW with a molecular weight of approx. 5 to 10,5 million g/mol. TIVAR® 1000 is available as compression moulded or ram extruded semi-finished shape in various colours. Fabricated parts and components can be machined out of semi-finished shapes. TIVAR® 1000 complies with [German Standard] DIN 16972 [PE-UHMW, TG1 and TG2].

[Property profile]

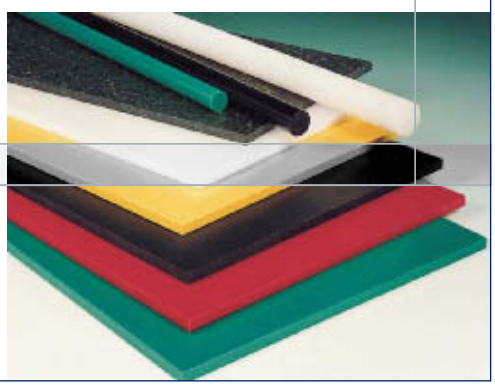
excellent sliding properties
high wear resistance
high impact strength
very good chemical and corrosion resistance
good noise absorption
anti-adhesive
high energy absorption capacity at high stress rates
temperature resistance from -200° C to +80° C [depending on mechanical load]
physiologically safe

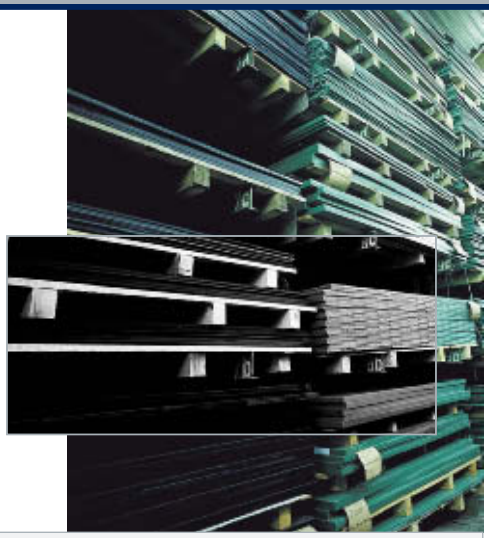
[Examples of applications]

chain and belt guides
wear strips, guide rails and neckguides
corner tracks
spiral conveyors
extruded profiles and guide rails
other guiding and conveying components
track rollers and idler wheels, sprocket and gear wheels, belt pulleys, bushings,
pump parts, sealings
construction parts and components

[Fields of applications]

power transmission and conveying technology
filling and packaging industry
general engineering
food processing
environmental technology
conveying, assembly and material handling industries
port construction and offshore platforms
chemical industry





TIVAR® 1000 anti-static | PE-UHMW

[Product description]
Anti-static properties of PE-UHMW are often required with high line speeds and conveying rates. TIVAR® 1000 anti-static meets these requirements. Anti-static properties are achieved by incorporating efficient carbon black types.

[Property profile]
Similar to TIVAR® 1000, but with a surface resistivity of $< 10^9\ \Omega$.

[Examples of applications]
belt guides
guiding and conveying components

TIVAR® 1000 UV-stabilised | PE-UHMW

[Custom colours]

[Product description]
Effective UV-protection is achieved by adding carbon black or special UV-stabilisers. TIVAR® 1000 UV-stabilised is available in black, natural and custom colours.

[Property profile]
Similar to TIVAR® 1000, but with 10 to 15 times higher UV-resistance.

[Examples of applications]
Outdoor applications with mechanical properties similar to TIVAR® 1000.

TIVAR® 1000 anti-microbial

TIVAR® 1000 anti-microbial | PE-UHMW

[Custom colours]

[Product description]

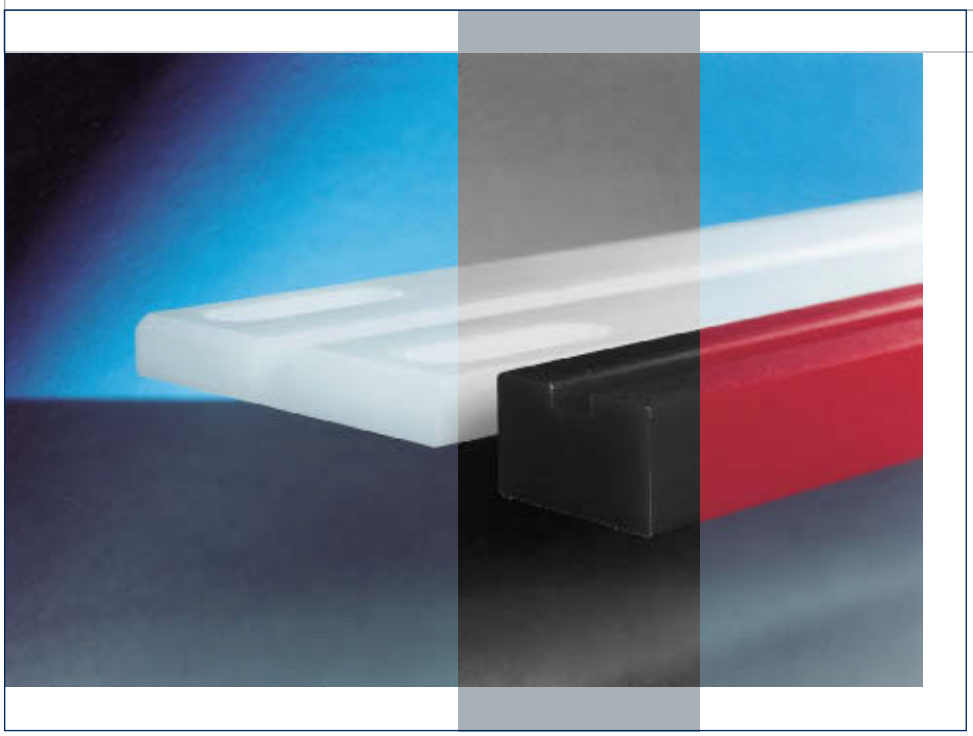
TIVAR® 1000 anti-microbial represents a group of PE-UHMW materials with anti-microbial properties. Anti-microbial efficacy is achieved by adding active substances based on individual requirements and specifications . TIVAR® 1000 anti-microbial is used in the medical and food processing industry.

[Property profile]

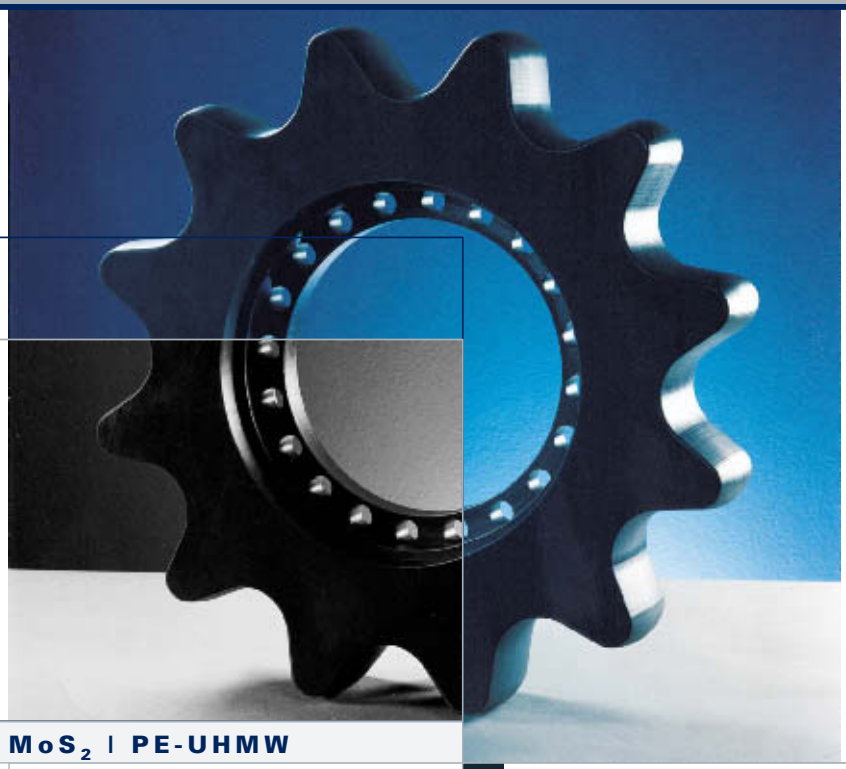
anti-microbial efficacy
approved for food contact
low coefficient of friction
high wear resistance
long life span
good chemical and corrosion resistance
good noise absorption
no moisture absorption

[Examples of applications]

sliding and drive components in the food and medical industry
corner tracks and chain guides in filling and packaging industries



TIVAR® 1000 MoS_2



TIVAR® 1000 MoS_2 | PE-UHMW

[Product description]

TIVAR® 1000 MoS_2 contains molybdenum disulphide. This solid lubricant reduces frictional resistance. The coefficient of friction decreases with dynamic load. TIVAR® 1000 MoS_2 is used in applications with higher loads and where dry running is required.

[Property profile]

self-lubricating
very low coefficient of friction
high wear resistance
long life span
good chemical and corrosion resistance
high UV-stability
good noise absorption
no moisture absorption

[Examples of applications]

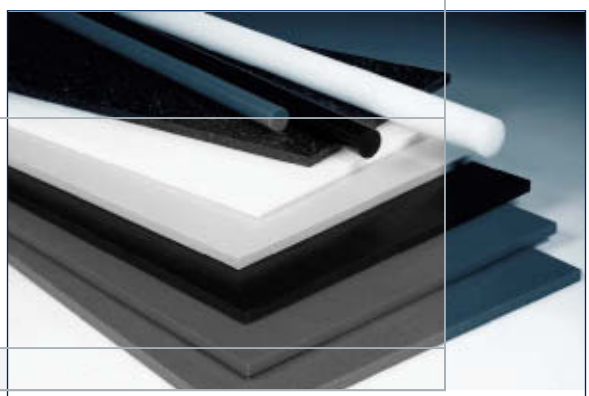
chain sprockets and gear wheels
sliding components and bearings
track and guide rollers

TIVAR® 1000 BOR | PE-UHMW

[Product description]	TIVAR® 1000 BOR is a PE-UHMW material modified with boron based additives used as shielding material in the nuclear industry.
[Property profile]	similar to TIVAR® 1000 increased absorption capacity for high energy radiation
[Examples of applications]	shielding in nuclear installations

TIVAR® 1000 with reprocessed content | PE-UHMW

[Product description]	The properties of PE-UHMW allow recycling back into a quality materials cycle. By adding higher quality reprocessed material it is possible to offer an attractive price-to-performance ratio for selected applications. TIVAR® 1000 with reprocessed content fulfills the requirements profile for a number of selected applications.
[Property profile]	good sliding properties good wear resistance good price-to-performance ratio as black version: anti-static I UV-resistant
[Examples of applications]	power transmission and conveying industries or components conveying, assembly and material handling industries port construction and offshore platforms



RCH® 1000 I PE-UHMW

[Product description]
RCH® 1000 PE-UHMW is used for ankle foot orthoses, body jackets, upper limb orthoses and especially for orthopaedic insoles.

[Property profile]
forming temperature +180° C
suitable for deep-drawing
excellent stability

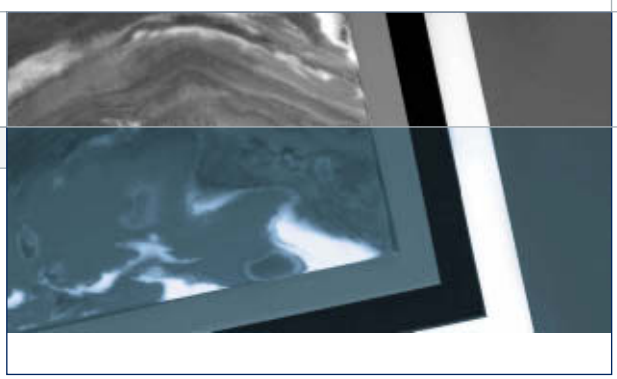
[Fields of applications]
technical orthopaedics

RCH® 500 I PE-HMW

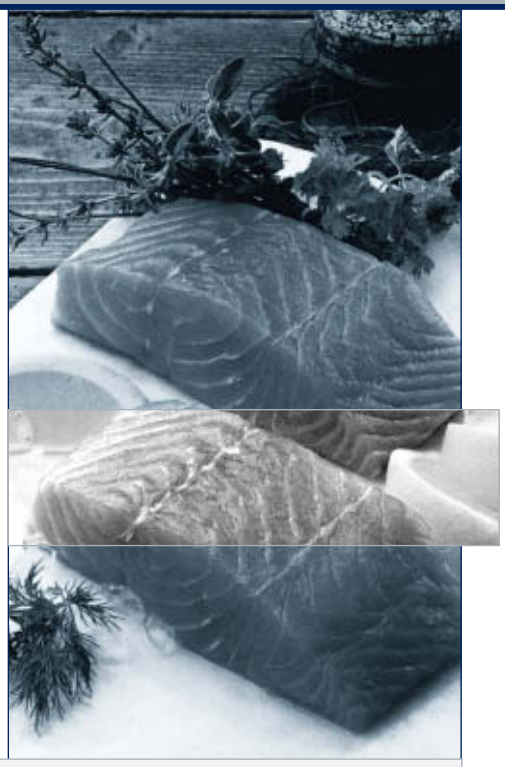
[Product description]
RCH® 500 is used for ankle foot orthoses, body jackets and upper limb orthoses.

[Property profile]
forming temperature between +160° C to +170° C
suitable for deep-drawing
malleable
weldable

[Fields of applications]
technical orthopaedics



STANDARD MATERIALS



PE 500 | PE-HMW

[Fields of applications]
food industry
leisure industry

[Comment]
Not recommended where abrasion resistance is required.

PE 300 | PE-HD

[Custom colours]

[Fields of applications]
tank building
container building

[Comment]
Not recommended where abrasion resistance is required.

TIVAR® Ceram P | PE-UHMW

[Product description]

TIVAR® Ceram P is a wear optimised PE-UHMW material with incorporated glass beads for use in demanding applications with higher loads [higher loads, higher speeds].

[Property profile]

very good wear resistance
good sliding properties
high impact strength
long life span
very good chemical and corrosion resistance
physiologically safe

[Examples of applications]

corner tracks and chain guides, neckguides in filling and packaging industries
sliding and drive components in power transmission and conveying industries
components in the paper industry: forming boards, foils and low vacuum foils, deflector strips and suction blades, suction box covers, sealing strips

TIVAR® SuperPlus

TIVAR® 1000 SuperPlus | PE-UHMW

[Product description]

TIVAR® SuperPlus is a wear optimised, partially cross-linked PE-UHMW material for use in extremely demanding applications and environments.

[Property profile]

excellent abrasion resistance
very good sliding properties
good dimensional stability
reduced thermal expansion
long life span
outstanding chemical and corrosion resistance

[Examples of applications]

sliding and drive components in power transmission and conveying industries
guide rails and neckguides in filling and packaging industries
demanding applications in the paper industry

TIVAR® Special DS

TIVAR® Special DS | PE-UHMW

[Product description]

TIVAR® Special DS is a PE-UHMW material designed for applications in the paper industry. TIVAR® Special DS is wear optimised and ideal for high line speeds and abrasive environments in the paper industry.

[Property profile]

very good abrasion resistance at higher line speeds
high impact strength
excellent sliding properties
good chemical and corrosion resistance
long life span

[Examples of applications]

components in the paper industry: forming boards, foils and low vacuum foils, deflector strips and suction blades, suction box covers, sealing strips
filter industry

TIVAR® DrySlide

TIVAR® DrySlide | PE-UHMW

[Product description]

TIVAR® DrySlide is the material with the lowest coefficient of friction within the TIVAR® product family. TIVAR® DrySlide is an engineering polymer based on PE-UHMW with built-in lubrication. The lubricant allows an extremely low coefficient of friction independent of loads being applied. In addition, TIVAR® DrySlide is provided as anti-static formulation.

[Property profile]

self-lubricating
anti-static
extremely low coefficient of friction
excellent wear resistance
long life span
good chemical and corrosion resistance
high UV-stability
good noise absorption
no moisture absorption

[Examples of applications]

corner tracks
chain and belt guides
parcel chutes
sliding and power transmission components

TIVAR® Oil Filled | PE-UHMW

[Product description]

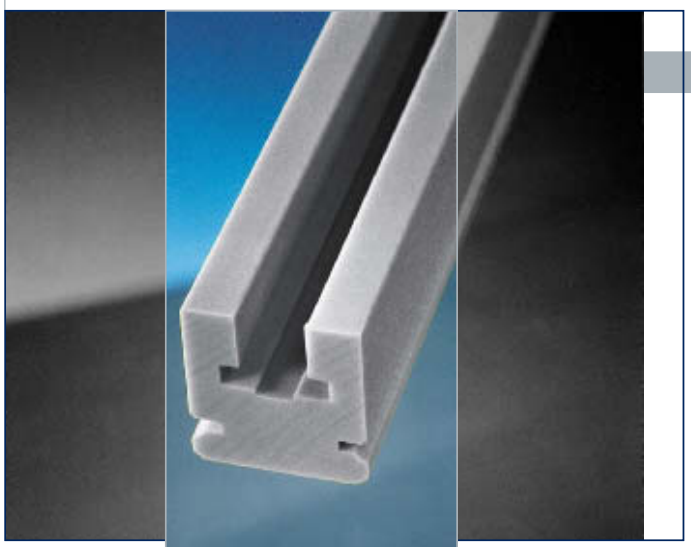
TIVAR® Oil Filled is a PE-UHMW material with an oil based additive. This makes TIVAR® Oil Filled self-lubricating, additional lubrication is not required. The main features of TIVAR® Oil Filled are significant noise reduction and, in addition, reduction of required driving force. TIVAR® Oil Filled complies with European Food Regulation [EU Directive 90/128/EEC] and FDA Regulation 21CFR177.1520 for food contact.

[Property profile]

self-lubricating
approved for food contact according to EU Directive 90/128/EEC,
FDA Regulation 21CFR177.1520
low coefficient of friction
high wear resistance
long life span
good chemical and corrosion resistance
very good noise absorption
no moisture absorption

[Examples of applications]

sliding and drive components in the food industry
corner tracks
chain guides



TIVAR® CleanStat

TIVAR® CleanStat | PE-UHMW

[Product description]

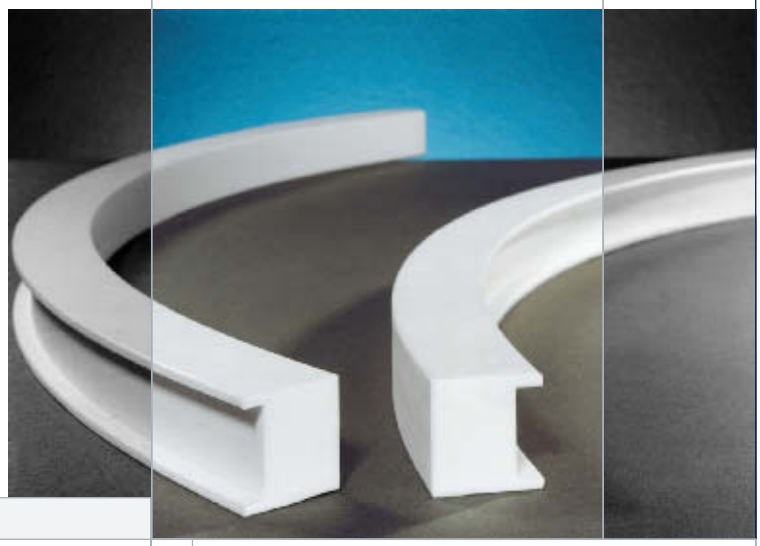
TIVAR® CleanStat is a PE-UHMW material for use in food processing and pharmaceutical industries. TIVAR® CleanStat has anti-static properties and meets European Food Regulation [EU Directive 90/128/EEC] as well as FDA Regulations 21CFR177.1520 and 21CFR178.3297 for food contact.

[Property profile]

anti-static
approved for food contact according to EU Directive 90/128/EEC,
FDA Regulation 21CFR177.1520 and FDA Regulation 21CFR178.3297
low coefficient of friction
high wear resistance
long life span
good chemical and corrosion resistance
very good noise absorption
no moisture absorption

[Examples of applications]

sliding and drive components in the food and pharmaceutical industry



TIVAR® H.O.T. | PE-UHMW

[Product description]

TIVAR® H.O.T. [Higher Operating Temperature] was formulated to maintain key properties in an extended temperature range [80° C up to 135° C, depending on loads]. Special additives enable TIVAR® H.O.T. to inhibit the oxidation process. Given these properties TIVAR® H.O.T. represents a cost-efficient alternative to PTFE and polyamide.

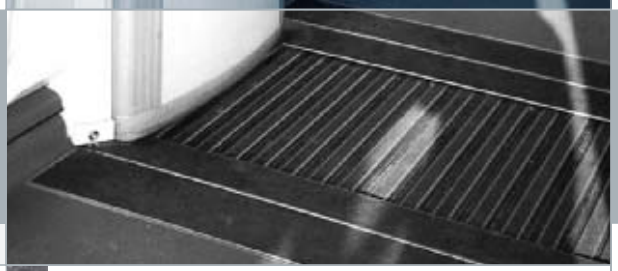
[Property profile]

retained properties in extended temperature range
contains oxidation inhibiting additives
approved for food contact according to EU Directive 90/128/EEC,
FDA Regulation 21CFR177.1520 and FDA Regulation 21CFR178.2010
low coefficient of friction
high wear resistance
extended life at elevated temperatures [80° C up to 135° C, depending on loads]
very good chemical and corrosion resistance
no moisture absorption

[Examples of applications]

sliding and drive components in the food and conveying industry
[at elevated temperatures up to 135° C]
bakeries
food processing and packaging
candy industry
chemical industry

TIVAR® FlamEx



TIVAR® FlamEx | PE-UHMW

[Product description]

TIVAR® FlamEx is a flame retardent material based on PE-UHMW. It combines the key characteristics of TIVAR® 1000 with flame retardency.

[Property profile]

flame retardent
rating according to: UL 94, V-0
DIN 5510-2, class S4
FMVSS 302
BS 476, Part 7
good abrasion resistance
good sliding properties
high impact strength
UV-stabilised
anti-static

[Examples of applications]

railway
vehicle manufacturing
building and construction
general mechanical engineering

TIVAR® 88 | lining material

[Product description]

TIVAR® 88 is a premium grade engineered polymer optimised for use in lining applications. Key properties of TIVAR® 88 are the very low coefficient of friction and high abrasion resistance tailored to the requirements in lining and bulk material handling applications.

[Property profile]

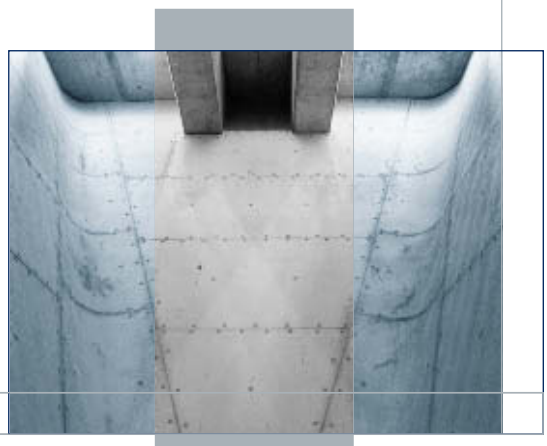
very low coefficient of friction
excellent abrasion resistance designed to requirements in lining applications
water repellent
very good chemical and corrosion resistance
temperature range -200° C to +80° C
high impact strength
on request: anti-static, UV-stabilized

[Examples of applications]

lining of:
storage bins
silos
feeding hoppers
chutes
chain trough conveyors
screw troughs
charging boxes
discharge boxes
transport chutes
vibrating chutes
railway trucks
self-unloading bulk carriers
tipper trucks
wheel loader pans

[Fields of applications]

coal | earth
various ores
ceramics and other minerals
open cast mined lignite
ceramic industry
brickworks
gypsum plants
cement works
chemical industry
feed concentrate plants
sugar industry | salt mines
transport and storage operations
fertilizer industry



TIVAR® BlueLine I PE-UHMW

[Product description]

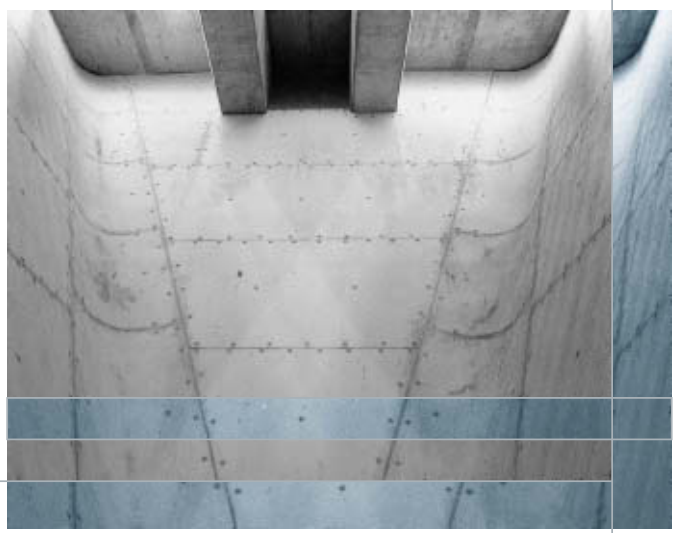
TIVAR® BlueLine is the optimum material for lining applications having good all-round properties. On request TIVAR® BlueLine can also be supplied in UV-stabilised and anti-static grades.

[Property profile]

good sliding properites
good abrasion resistance designed to requirements in lining applications

[Examples of applications]

lining of:
storage bins
silos
feeding hoppers
chutes
chain trough conveyors
screw troughs
charging boxes
discharge boxes
transport chutes
vibrating chutes
railway trucks
self-unloading bulk carriers
tipper trucks
wheel loader pans



[Fields of applications]

coal I earth
various ores
ceramics and other minerals
open cast mined lignite
ceramic industry
brickworks
gypsum plants
cement works
chemical industry
feed concentrate plants
sugar industry I salt mines
transport and storage operations
fertilizer industry

TIVAR® Rubber-backed | PE-UHMW

[Product description]

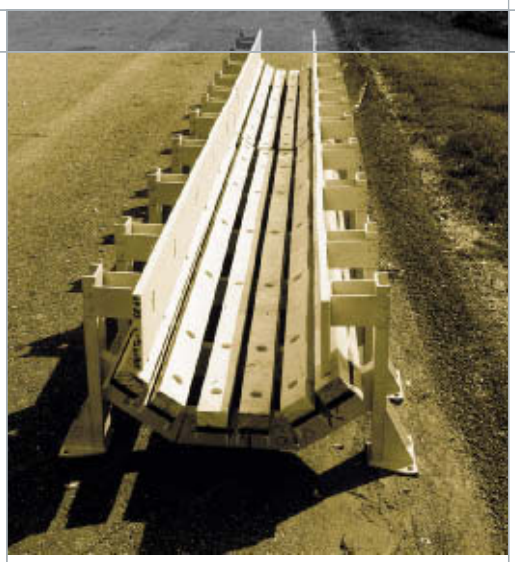
TIVAR® Rubber-backed is a composite material formed from TIVAR® PE-UHMW and rubber.
In a special production process PE-UHMW sheets are permanently bonded to rubber.
The rubber side allows adhesion to other materials using adhesives.

[Property profile]
[referring to PE-UHMW]

excellent sliding properties
high wear resistance
high impact strength
very good chemical and corrosion resistance
good noise absorption
anti-adhesive
high energy absorption capacity at high stress rates
temperature resistance from -200° C to +80° C
[depending on mechanical load]
physiologically safe

[Examples of applications]

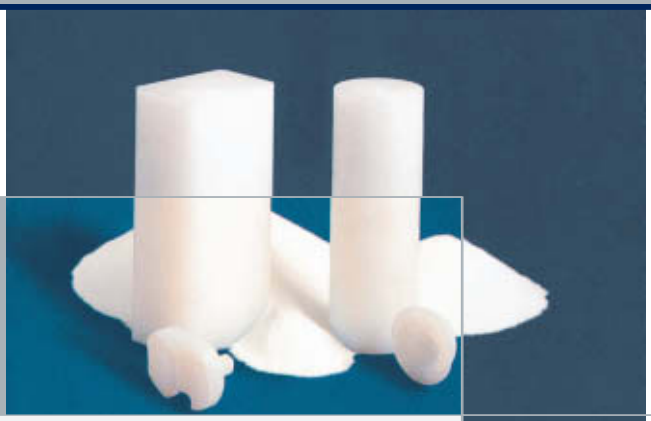
slider beds
lining installations without mechanical fastening possibilities



CHIRULEN® | PE-UHMW

[Product description]	CHIRULEN® is one of the medical grades PE-UHMW complying with ISO 5834 and ASTM F 648 produced by Poly Hi Solidur. Due to its tribological properties CHIRULEN® stands as one of the preferred biomaterials used as articulating material in artificial joints.
[Property profile]	produced by compression moulding technology high purity low calcium biocompatible physical/mechanical properties complying with ISO 5834 and ASTM F 648
[Examples of applications]	orthopaedic industry I endoprosthetics: articulating biomaterial in artificial joints

TIVAR® Premium



TIVAR® Premium I PE-UHMW

[Product description]

TIVAR® Premium is one of the medical grades PE-UHMW complying with ISO 5834 and ASTM F 648 produced by Poly Hi Solidur. Due to its tribological properties TIVAR® Premium stands as one of the preferred biomaterials used as articulating material in artificial joints.

[Property profile]

produced by ram extrusion technology
high purity
low calcium
biocompatible
physical/mechanical properties complying with ISO 5834 and ASTM F 648

[Examples of applications]

orthopaedic industry I endoprosthetics:
articulating biomaterial in artificial joints

Survey of materials

Survey of colours

[Standard materials]

- TIVAR® 1000
- TIVAR® 1000 anti-static
- TIVAR® 1000 UV-stabilised
- TIVAR® 1000 anti-microbial
- TIVAR® 1000 MoS_2
- TIVAR® 1000 BOR
- TIVAR® 1000 with reprocessed content
- RCH® 1000
- RCH® 500
- PE 500
- PE 500 with reprocessed content
- PE 300

[Custom colours]
[Custom colours]
[Custom colours]

- TIVAR® Ceram P
- TIVAR® SuperPlus
- TIVAR® Special DS
- TIVAR® DrySlide
- TIVAR® Oil Filled
- TIVAR® CleanStat
- TIVAR® H.O.T.
- TIVAR® FlamEx
- TIVAR® 88
- TIVAR® BlueLine
- TIVAR® Rubber-backed
- CHIRULEN®
- TIVAR® Premium

Round bars | ram extruded

TIVAR® 1000 | PE-UHMW

ø	natural	green	black	weight [1000 mm]	weight [2000 mm]
12,7 mm	O	O	O	0,12 kg	0,24 kg
14,4 mm	O	O	O	0,16 kg	0,32 kg
20,0 mm	O	O	O	0,31 kg	0,63 kg
25,0 mm	O	O	O	0,49 kg	0,98 kg
28,5 mm	O	O	O	0,64 kg	1,28 kg
30,0 mm	O	O	O	0,70 kg	1,40 kg
35,0 mm	O	O	O	0,96 kg	1,92 kg
40,0 mm	O	O	O	0,70 kg	1,40 kg
45,0 mm	O	O	O	1,58 kg	3,16 kg
50,0 mm	O	O	O	1,95 kg	3,90 kg
55,0 mm	O	O	O	2,37 kg	4,74 kg
60,0 mm	O	O	O	2,80 kg	5,60 kg
70,0 mm	O	O	O	3,80 kg	7,60 kg
80,0 mm	O	O	O	4,94 kg	9,88 kg
90,0 mm	O	O	O	6,26 kg	12,52 kg
100,0 mm	O	O	O	7,72 kg	15,46 kg
110,0 mm	O	O	O	9,33 kg	18,66 kg
120,0 mm	O	O	O	11,13 kg	22,27 kg
125,0 mm	O	O	O	12,05 kg	24,10 kg
130,0 mm	O	O	O	13,20 kg	26,40 kg
140,0 mm	O	O	O	15,13 kg	30,26 kg
150,0 mm	O	O	O	17,28 kg	34,56 kg
160,0 mm	O	O	O	19,76 kg	39,52 kg
180,0 mm	O	O	O	24,99 kg	49,98 kg
200,0 mm	O	O	O	31,31 kg	62,62 kg
250,0 mm	O	O	O	48,92 kg	97,84 kg

O = No stock standard. Please specify your requirements.

Sheet I compression moulded

Quality	TIVAR® materials I PE-UHMW
Colour	natural I black I green I blue I yellow I red I grey I custom colours
Sizes [mm]	6000 x 2000 6000 x 1330 6000 x 1220 4000 x 2000 4000 x 1000 3000 x 2000 3000 x 1330 3000 x 1220 3000 x 1000 2000 x 1000
Thickness [mm]	1 to 160
Tolerance in Thickness [mm]	1 mm: -0/+0,4 mm 2 to 4 mm: +/-0,2 mm 5 to 10 mm: +/-0,3 mm [skived] 8 to 80 mm: +/-0,2 mm [planed] >/= 80 mm: +/-0,3 mm [planed]
Details	Sheet dimensions with plus-tolerance in length and width. [Tolerances acc. to DIN 16972]

Quality	PE 500 I PE-HMW
Colour	natural I black I green I red-brown I blue I yellow I red I grey I black-white marble I custom colours
Sizes [mm]	6000 x 2000 6000 x 1330 6000 x 1220 4000 x 2000 4000 x 1000 3000 x 2000 3000 x 1330 3000 x 1220 3000 x 1000 2000 x 1000
Thickness [mm]	8 to 140
Tolerance in Thickness [mm]	8 to 80 mm: +/-0,2 mm [planed] >/= 80 mm: +/-0,3 mm [planed]
Details	Sheet dimensions with plus-tolerance in length and width. [Tolerances acc. to DIN 16972]

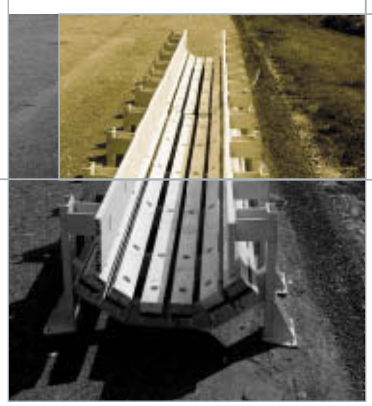
Sheet I extruded

Quality	PE 500 I PE-HMW
Colour	natural I black I custom colours
Sizes [mm]	3000 x 1500 2000 x 1000
Thickness [mm]	1 to 30 1 to 30
Details	Sheet dimensions with plus-tolerance in length and width. [Tolerances acc. to DIN 16925 I 16971]

Quality	PE 300 I PE-HD
Colour	natural I black I custom colours
Sizes [mm]	3000 x 1500 2000 x 1000
Thickness [mm]	1 to 30 1 to 30
Details	Sheet dimensions with plus-tolerance in length and width. [Tolerances acc. to DIN 16925 I 16971]

Sheet I TIVAR® Rubber-backed

Quality	TIVAR® Rubber-backed
Colour	PE-UHMW: yellow I rubber: black
Sizes [mm]	4000 x 1000
Thickness [mm]	PE-UHMW thickness / rubber thickness 5/3 I 5/5 I 8/3
Details	further combinations on request



Material designation	1000	anti-static	UV-stabilized
Colour	natural I green I blue yellow I red I grey	black	black I natural I coloured
DIN-designation	PE-UHMW	PE-UHMW	PE-UHMW
Requirement			
Abrasion resistance	good	good	good
Sliding properties	good	good	good
Mechanical load capacity	moderate	moderate	moderate
Isolation	excellent	nil	good
Anti-static efficacy	nil	excellent	nil [natural, coloured] good [black]
UV-resistance	fair	excellent	excellent
Chemical resistance	good	good	good
Temperature range [C°] **min./max./short-term exposure limit**	-200/+80/+90	-200/+80/+90	-200/+80/+90
Physiologically safe *	yes [EU, FDA]	yes [EU]	no

Material designation	1000 MoS_2	1000 + reprocessed content	Ceram P
Colour	black-anthracite	black, green, confetti	yellow-green
DIN-designation	PE-UHMW	PE-UHMW	PE-UHMW
Requirement			
Abrasion resistance	good	fair	excellent
Sliding properties	good	suitable	good
Mechanical load capacity	good	fair	good
Isolation	fair	good	good
Anti-static efficacy	fair	nil [green, coloured, confetti] good [black]	nil
UV-resistance	suitable	fair [green, confetti] good [black]	fair
Chemical resistance	good	good	good
Temperature range [C°] **min./max./short-term exposure limit**	-200/+80/+90	-200/+80/+90	-200/+80/+90
Physiologically safe *	no	no	yes [EU, FDA]

* The raw materials used to produce TIVAR® grades marked with "yes" comply with following guidelines:
EU = EU Directive 90/128/EEC
FDA = FDA Regulation 21CFR177.1520 or in combination with 21CFR178.2010 or 21CFR178.3297

Material designation	Super Plus	Special DS	DrySlide
Colour	silver-grey	yellow	black
DIN-designation	PE-UHMW	PE-UHMW	PE-UHMW
Requirement			
Abrasion resistance	excellent	good	good
Sliding properties	excellent	good	excellent
Mechanical load capacity	good	good	moderate
Isolation	good	excellent	nil
Anti-static efficacy	nil	nil	excellent
UV-resistance	fair	fair	excellent
Chemical resistance	good	good	good
Temperature range [C°] min./max./short-term exposure limit	-200/+80/+90	-200/+80/+90	-200/+80/+90
Physiologically safe *	no	yes [EU, FDA]	no

Material designation	Oil Filled	CleanStat	H.O.T.
Colour	grey	black	white
DIN-designation	PE-UHMW	PE-UHMW	PE-UHMW
Requirement			
Abrasion resistance	good	good	good
Sliding properties	excellent	good	good
Mechanical load capacity	moderate	moderate	moderate
Isolation	good	nil	good
Anti-static efficacy	nil	excellent	nil
UV-resistance	fair	excellent	fair
Chemical resistance	good	good	excellent
Temperature range [C°] min./max./short-term exposure limit	-200/+80/+90	-200/+80/+90	-200/+100/+135* [*depending on load]
Physiologically safe *	yes [EU, FDA]	yes [EU, FDA]	yes [EU, FDA]

* The raw materials used to produce TIVAR® grades marked with "yes" comply with following guidelines:
EU = EU Directive 90/128/EEC
FDA = FDA Regulation 21CFR177.1520 or in combination with 21CFR178.2010 or 21CFR178.3297

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