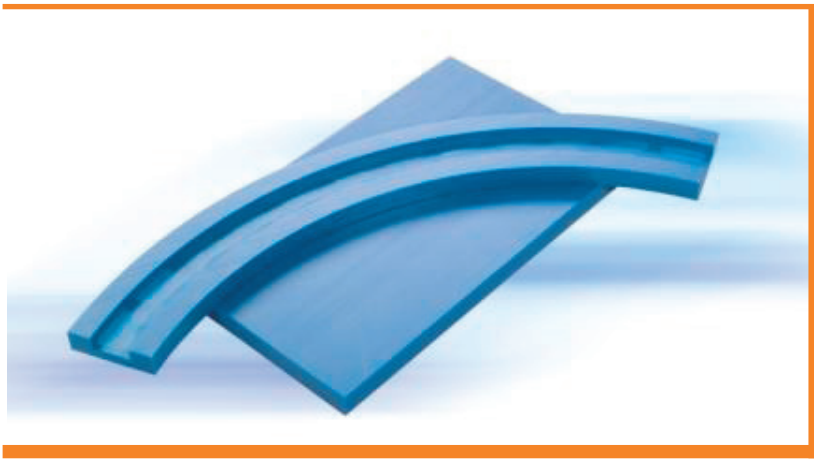
TIVAR® HPV UHMW-PE

SIMPLY NO SUBSTITUTE

BEARING GRADE FOR OUTSTANDING PERFORMANCE IN CONVEYING SYSTEMS



Quadrant EPP offers superior quality plastic material and finished parts for all touch points in your conveyor system where friction and wear appear. Quadrant TIVAR® HPV was developed specifically for wear components subject to challenging production environments, such as high speeds, high temperatures, high loads and aggressive cleaning agents. Components made with TIVAR® HPV show improved sliding behavior and high wear and abrasion resistance due to its low coefficient of friction and high limiting pressure velocity over competitive materials.

USING TIVAR® HPV WILL ALLOW FOR:

Longer productive cycles between maintenance, shorter downtimes, and your systems run with less interruption saving costs and energy. The time required for failure analysis and installation of replacement parts is reduced, the safety and return on your investment improves, all while being environmentally friendly.

Key Benefits

- Very low wear of both belt & slide plates
- COF reduced by 80% vs POM-C
- LPV value approximately 18-35% higher than competitive dry lubricant material
- FDA compliant
- Noise reduction
- Built in dry lubricant

*Quadrant Lab Tests (results next page)

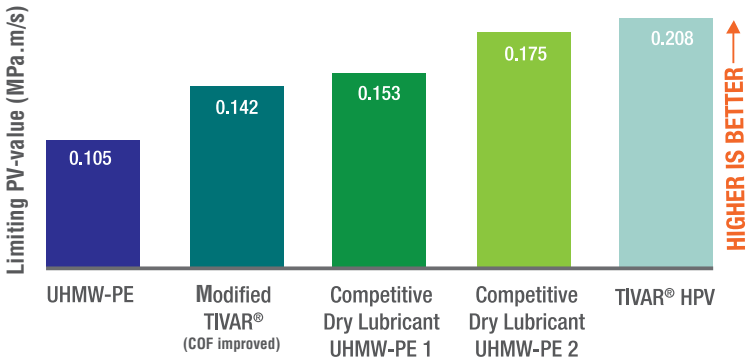
Availability

Shapes:
- Plate
- Round Rod

Profiles:
- Extruded
- Machined
- Finished parts according to customer's drawing

LIMITING PV-VALUES

- Tribological test procedure: Thrust washer testing
- LPV-limits measured on a Thrust Washer rotating against a metal system, speed 0.5 m/s (wear as limit)



* Data Source: Quadrant Lab Tests

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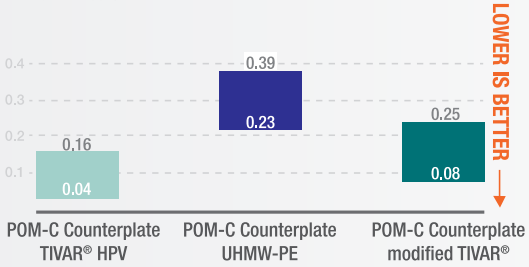
TIVAR® HPV

UHMW-PE SLIDING MATERIALS COMPARISON*

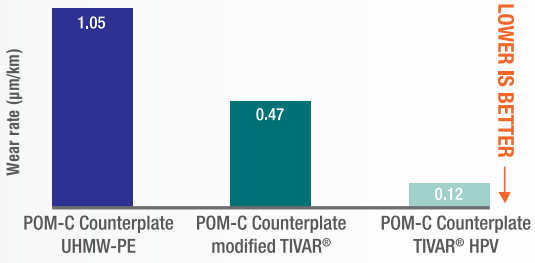
DYNAMIC COEFFICIENT OF FRICTION

- Tribological test procedure: similar to Test method A.pin-on-disk⁰, as described in ISO 7148-2:1999
- Test conditions: 3MPa pressure/POM C pin/ sliding velocity: 0.33m/s /normal environment: air, 23ºC, 50% RH /unlubricated operation /test time: 24 hours



WEAR RESISTANCE

- Tribological test procedure: similar to Test method A "pin-on-disk", as described in ISO 7148-2:1999
- Test conditions: 3MPa pressure/POM C pin/ sliding velocity: 0.33m/s /normal environment: air, 23ºC, 50% RH /unlubricated operation /test time: 24 hours



* Data Source: Quadrant Lab Tests

Data Sheet - TIVAR® HPV UHMW-PE

	Property	Units	Test Method	Typical Average Value
Mechanical Properties	Specific Gravity @ 73˚F	-	ASTM D792	0.93
	Tensile Strength @ 73˚F	psi	ASTM D638	5,900
	Tensile Modulus of Elasticity @ 73˚F	psi	ASTM D638	56,000
	Tensile Elongation (at break) @ 73˚F	%	ASTM D638	390
	Flexural Strength @ 73˚F	psi	ASTM D790	3,000
	Flexural Modulus of Elasticity @ 73˚F	psi	ASTM D790	77,000
	Shear Strength @ 73˚F	psi	ASTM D732	-
	Compressive Strength @ 10% Deformation @ 73˚F	psi	ASTM D695	3,000
	Compressive Modulus of Elasticity @ 73˚F	psi	ASTM D695	77,000
	Hardness, Rockwell, Scale as Noted @ 73˚F	-	ASTM D785	-
	Hardness, Durometer, Shore "D" Scale @ 73˚F	-	ASTM D2240	65
	Notched Izod Impact @ 73˚F	ft. lb./in.^{2}	ASTM D4020	55
	Coefficient of Friction - (Dry vs. Steel) Dynamic	-	QTM 55007	0.09
	Limiting PV with 4:1 safety factor applied	ft. lb., in.^{2} - min	QTM 55007	6000
	Sand Slurry	Tivar®1000=100	QTM D4020	165
	Sand Wheel Wear	Tivar®1000=100	ASTM G65	101
Thermal Properties	Coefficient of Liner Thermal Expansion (-40˚F to 300˚F)	in./in./˚F	ASTM E831 (TMA)	8x10^{-5}
	Heat Deflection Temperature @ 264 psi	˚F	ASTM D648	116
	Tg-Glass Transition (amorphous)	˚F	ASTM D3418	-
	Melting Point (crystalline) peak	˚F	ASTM D3418	275
	Continuous Service Temp in Air (Max.) (1)	˚F	-	180
	Thermal Conductivity	BTU in./(hr. ft.^{2} ˚F)	F433	-
Electrical Properties	Dielectric Strength (Short Term)	Volts/mil	ASTM D149	-
	Surface Resistivity	ohms/square	EOS/ESD S11.11	>10^{14}
	Dielectric Constant, 10^6 Hz	-	ASTM D150	-
	Dissipation Factor, 10^6 Hz	-	ASTM D150	-
	Flammability @ 3.1mm (1/8 in.)(3)	-	UL94	HB
Other	Water Absorption Immersion, 24 Hours	% by wt.	ASTM D570(2)	<0.1
	Absorption Immersion, Saturation	% by wt.	ASTM D570(2)	<0.1

(1) Data represents Quadrant's estimated maximum long-term service temperature based on practical field experience.
(2) Specimens: 1/8" thick x 2" diameter or square.
(3) Estimated rating based on available data. The UL-94 Test is a laboratory test and does not relate to actual fire hazard.

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