

TIVAR® HPV FG UHMW-PE

Bearing Grade for Outstanding Performance in Conveying & Processing Systems

TIVAR® HPV FG 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 exhibit improved sliding behavior, and abrasion resistance due to its low COF, and high LPV.



Key Benefits

- Very low wear of belt and slide plates
- COF reduced by 80% vs POM-C*
- LPV value approximately 18-35% higher than competitive dry lubricant material
- Food contact safe: FDA and EU 10/2011 compliant
- Significant noise reduction
- Built in dry lubricant

Competitive Advantage

- Longer productive cycles between maintenance
- Shorter downtimes
- Less interruptions, leading to significant energy cost savings
- Eliminates lubrication, cleaner operation

Availability

Shapes

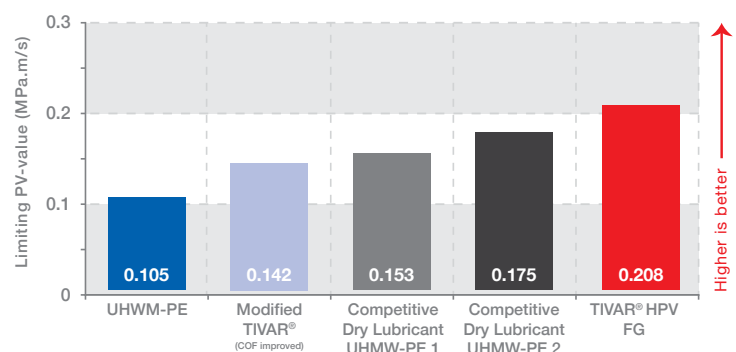
- Stock Plate
 - .25" to 2"
 - 48 x 120 - Available upon request
- Round Rod

Profiles

- Extruded
- Machined
- Finished parts according to customer's specifications

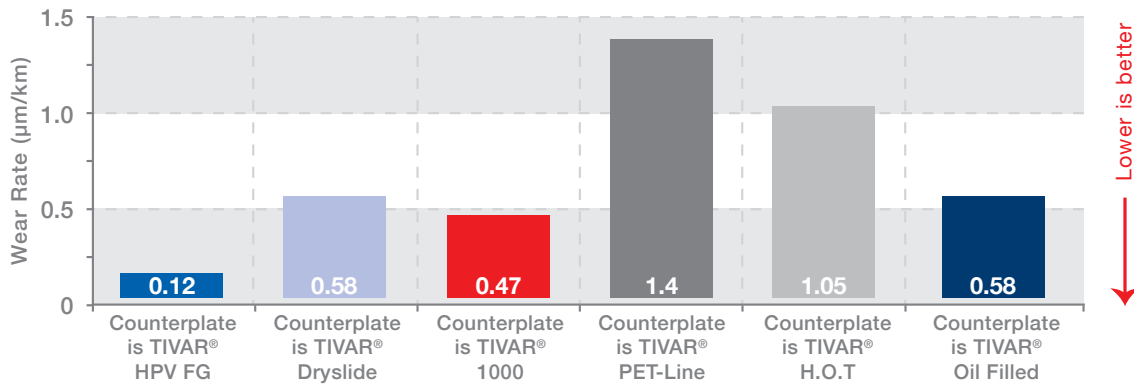
Limiting PV-Values

• 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: Mitsubishi Chemical Advanced Material Lab Tests



Lab Testing: WEAR RATE of the POM C Pin

(measured on a "plastics pin on rotating disk" - tribo system, 3MPa pressure, 0.33m/s speed @23°C)



• Tribological test procedure: similar to Test method A "pin-on-disk", as described in ISO 7148-2: 1999
 • Test conditions: 3 MPa pressure / POM-C pin / sliding velocity 0.33 m/s / normal environment: air, 23°C, 50% RH / unlubricated operation / test time: 24 hrs
 • Data Source: Mitsubishi Chemical Advanced Material Lab Tests

Data Sheet

	Metric	Imperial			
		Test Method ASTM	Average Value		
Mechanical Properties	Density (Specific Gravity @ 73°F)	ISO 1183-1	0.95 g/cm ³	ASTM D792	0.93
	Tensile Strength @ 23°C (73°F)	ISO 527-1/-2	20 MPa	ASTM D638	5,900 psi
	Tensile Modulus of Elasticity @ 23°C (73°F)	ISO 527-1/-2	800 MPa	ASTM D638	56,000 psi
	Tensile Elongation (at break) @ 23°C (73°F)	ISO 527-1/-2	>50%	ASTM D638	390%
	Flexural Strength @ 23°C (73°F)	ISO 178	-	ASTM D790	3,000 psi
	Flexural Modulus of Elasticity @ 23°C (73°F)	ISO 178	-	ASTM D790	77,000 psi
	Compressive Stress @ 10% Deformation @ 23°C (73°F)	ISO 604	22 MPa	ASTM D695	3,000 psi
	Compressive Modulus of Elasticity @ 23°C (73°F)	ISO 604	-	ASTM D695	77,000 psi
	Hardness, Durometer, Shore "D" Scale @ 23°C (73°F)	ISO 868	D61	ASTM D2240	D65
	Notched Charpy Impact @ 23°C (73°F)	ISO 179-1/1eA	106P kJ/m ²	ASTM D25 6 Type "A"	55 ft. lb./in. ²
	Sand Slurry	ISO 15527	-	MCAM TM D4020	165 (TIVAR® 1000=100)
	Sand Wheel Wear	-	-	ASTM G65	101 (TIVAR® 1000=100)
Thermal Prop.	Coefficient of Linear Thermal Expansion 23-6 °C (-40-300°F)	ASTM E831 (TMA)	-	ASTM E831 (TMA)	8 x 10 ⁻⁵ in./in./°F
	Heat Deflection Temperature @ 1.8 MPa (264 psi)	ISO 75 -1/-2	-	ASTM D648	116°F
	Melting Point (crystalline) peak	ISO 11357-1/-3	135°C	ASTM D3418	275°F
	Continuous Service Temp in Air (Max.) ⁽¹⁾	-	80°C	-	180°F
	Thermal Conductivity	-	-	F433	-
Elect. Prop.	Surface Resistivity	EOS/ESD S11.11	-	EOS/ESD S11.11	>10 ¹⁴ ohms/square
	Flammability @ 3.1mm (1/8 in.) ⁽²⁾	UL 94	HB	UL-94	HB
Other	Water Absorption Immersion, 24 Hours	ISO 62	<0.1% by wt.	ASTM D570 ⁽³⁾	<0.1% by wt.
	Water Absorption Immersion, Saturation	-	<0.1% by wt.	ASTM D570 ⁽³⁾	<0.1% by wt.

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

Distributed by:



Email: info@polymershapes.com
 Call: 1 (866) 437-7427
www.polymershapes.com

All statements, technical information and recommendations contained in this publication are presented in good faith and are, as a rule, based upon tests and such tests are believed to be reliable and practical field experience. The reader, however, is cautioned, that Mitsubishi Chemical Advanced Materials does not guarantee the accuracy or completeness of this information and it is the customer's responsibility to determine the suitability of Mitsubishi Chemical Advanced Materials' products in any given application. TIVAR is registered trademark of the Mitsubishi Chemical Advanced Materials group of companies.

Design and content created by Mitsubishi Chemical Advanced Materials and are protected by copyright law. Copyright © Mitsubishi Chemical Advanced Materials. All rights reserved.
 MCM-FP-03B | 8.27.19

