

TIVAR® MD UHMW-PE

TIVAR® MD is a UHMW-PE grade that has been specifically tailored for use in the food processing and packaging industries, where it can be easily traced by conventional metal detection systems installed to detect the contamination of foodstuffs**. This FDA and EU compliant material offers exceptional toughness, impact strength, wear and abrasion resistance for various applications such as scrapers, funnels, seals, and chain guides.

** Results may vary depending on the sensitivity of the metal detection system used.



Competitive Advantage

OEMs, food processors and MRO Business Producers in the meat, cheese, dairy and bakery industries are continually searching for a good economical material solution where impact strength is a prime performance requirement that is detectable by existing processing line equipment. TIVAR® MD was designed for the most extreme processing environments, where fatigue, high speed, and wear can increase the risk of contamination.

Key Benefits

- Formulated for use with existing metal detection units
- Wear resistant
- Impact resistant
- Abrasion resistant
- Continuous use temperature up to 180°F (82°C)
- Good machinability
- Food contact safe: FDA and EU 10/2011 compliant

Detectability



Visual



Metal



X-Ray

Common Applications

- Scrapers for sausage bowls
- Paddles for dough mixing tubs
- Funnels for various food dispensing units
- Guiders & grippers for packaging units
- Seals
- Thrust washers
- Chain guider elements
- Rollers & Bushings



Data Sheet

		Metric		Imperial	
		Test Method ISO	Typical Average Value	Test Method ASTM	Typical Average Value
Mechanical Properties	Density (Specific Gravity @ 73°F)	ISO 1183-1	0.995 g/cm ³	ASTM D792	0.954
	Tensile Strength @ 23°C (73°F)	ISO 527-1/-2	-	ASTM D638	6,100 psi
	Tensile Modulus of Elasticity @ 23°C (73°F)	ISO 527-1/-2	775 MPa	ASTM D638	100,000 psi
	Tensile Elongation (at break) @ 23°C (73°F)	ISO 527-1/-2	15%	ASTM D638	380%
	Flexural Strength @ 23°C (73°F)	ISO 178	18 MPa	ASTM D790	4,200 psi
	Flexural Modulus of Elasticity @ 23°C (73°F)	ISO 178	-	ASTM D790	107,000 psi
	Shear Strength @ 23°C (73°F)	N/A	N/A	ASTM D732	-
	Compressive Stress / Strength @ 23°C (73°F)	ISO 604	7 / 11.5 / 18 MPa (1 / 2 / 5% Normal Strain)	ASTM D695	3,000 psi (10% Deformation)
	Compressive Modulus of Elasticity @ 23°C (73°F)	ISO 604	-	ASTM D695	90,000 psi
	Hardness, Rockwell, Scale as Noted @ 23°C (73°F)	ISO 2039-2	-	ASTM D785	-
	Hardness, Durometer, Shore "D" Scale @ 23°C (73°F)	ISO 868	D62	ASTM D2240	D64
	Charpy impact strength, Unnotched @ 23°C (73°F)	ISO 179-1/1eU	No Break	N/A	N/A
	Charpy impact strength, Notched @ 23°C (73°F)	ISO 179-1/1eA	90P kJ/m ²	ASTM D256 Type "A"	No Break
	Charpy impact strength, Notched (double 14° notch) @ 23°C (73°F)	ISO 11542-2	105 kJ/m ²	N/A	N/A
Thermal Prop.	Coefficient of Friction – (Dry vs. Steel) Dynamic	ISO 7148-2	0.15-0.30	MCAM TM 55007	0.13
	Limiting PV with 4:1 safety factor applied	-	0.08 MPa.m/s	MCAM TM 55007	N/A
	Sand Slurry Abrasion	ISO 15527	75 (TIVAR® 1000 = 100)	ASTM D4020	11 (1018 Steel = 100)
	Coefficient of Linear Thermal Expansion 23° to 6 °C (-40° to 300°F)	ASTM E831 (TMA)	200 x 10 ⁻⁶ m/(m.K)	ASTM E831 (TMA)	1.1 x 10 ⁻⁵ in./in./°F
	Heat Deflection Temperature @ 1.8 MPa (264 psi)	ISO 75 -1/-2	42°C	ASTM D648	116°F
	Tg-Glass Transition (amorphous)	ISO 11357-1/-2	-	ASTM D3418	-
Electrical Prop.	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	-	0.4 W/(K.m)	-	-
	Dielectric Strength (Short Term)	ISO 60243-1	-	ASTM D149	-
	Surface Resistivity	EOS/ESD S11.11	>10 ¹² ohm/sq	EOS/ESD S11.11	>10 ¹³ ohms/square
Other	Dielectric Constant, 10 ⁶ Hz	IEC 60250	-	ASTM D150	-
	Dissipation Factor, 10 ⁶ Hz	IEC 60250	-	ASTM D150	-
	Flammability @ 3.1mm (1/8 in.) ⁽²⁾	UL 94	HB	UL-94	HB
	Water Absorption Immersion, 24 Hours	ISO 62	>0.01% by wt.	ASTM D570 ⁽³⁾	>0.01% by wt.
	Water Absorption Immersion, Saturation	-	>0.01% by wt.	ASTM D570 ⁽³⁾	>0.01% by wt.

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(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.

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