



TIVAR H.O.T.

Premium heat stabilized / anti-oxidant filled UHMW

| Physical Properties | Metric | English | Comments |
|--------------------------------|------------|--------------------------|--------------------------------|
| Specific Gravity | 0.94 g/cc | 0.034 lb/in ³ | ASTM D792 |
| Water Absorption | Max 0.01 % | Max 0.01 % | Immersion, 24hr; ASTM D570 (2) |
| Water Absorption at Saturation | Max 0.01 % | Max 0.01 % | Immersion; ASTM D570(2) |

Mechanical Properties

| | | | |
|----------------------------|------------------|-----------------|------------------------------|
| Hardness, Shore D | 68 | 68 | ASTM D2240 |
| Tensile Strength, Ultimate | 40 MPa | 5800 psi | ASTM D638 |
| Elongation at Break | 300 % | 300 % | ASTM D638 |
| Tensile Modulus | 0.689 GPa | 100 ksi | ASTM D638 |
| Flexural Modulus | 0.758 GPa | 110 ksi | ASTM D790 |
| Flexural Yield Strength | 24.1 MPa | 3500 psi | ASTM D790 |
| Compressive Strength | 20.7 MPa | 3000 psi | 10% Def., 73°F; ASTM D695 |
| Compressive Modulus | 0.552 GPa | 80 ksi | ASTM D695 |
| Shear Strength | 33.1 MPa | 4800 psi | ASTM D732 |
| Coefficient of Friction | 0.12 | 0.12 | Dry vs. Steel; QTM55007 |
| Limiting Pressure Velocity | 0.0701 MPa-m/sec | 2000 psi-ft/min | 4:1 safety factor; QTM 55007 |
| Izod Impact, Notched | NB | NB | ASTM D256 Type A |

Electrical Properties

| | | | |
|--------------------------------|----------------|----------------|-----------------------|
| Surface Resistivity per Square | Min 1e+013 ohm | Min 1e+013 ohm | ASTM D257 |
| Dielectric Constant | 2.3 | 2.3 | (1MHz); ASTM D150 |
| Dielectric Strength | 90.6 kV/mm | 2300 V/mil | Short Term; ASTM D149 |
| Dissipation Factor | 0.0005 | 0.0005 | (1MHz); ASTM D150 |

Thermal Properties

| | | | |
|---|-------------|------------------------------------|-------------------------------|
| CTE, linear 68°F | 342 µm/m-°C | 190 µin/in-°F | (-40°F to 300°F); ASTM E831 |
| Thermal Conductivity | 0.409 W/m-K | 2.84 BTU-in/hr-ft ² -°F | |
| Melting Point | 135 °C | 275 °F | Crystalline, Peak; ASTM D3418 |
| Maximum Service Temperature, Air | 135 °C | 275 °F | Long Term |
| Deflection Temperature at 1.8 MPa (264 psi) | 46.7 °C | 116 °F | ASTM D648 |
| Flammability, UL94 (Estimated Rating) | HB | HB | 1/8 inch |

Qualitative Processing Properties

| | | |
|-----------------------------------|--------------|---------------------------|
| Compliance - FDA | Compliant | |
| Machinability | 3 | 1-10, 1=Easier to Machine |
| Service in Alcohols | Acceptable | |
| Service in Aliphatic Hydrocarbons | Acceptable | |
| Service in Aromatic Hydrocarbons | Unacceptable | |
| Service in Chlorinated Solvents | Acceptable | |
| Service in Ethers | Limited | |
| Service in Ketones | Limited | |
| Service in Strong Acids | Limited | |
| Service in Strong Alkalies | Acceptable | |
| Service in Sunlight | Limited | |
| Service in Weak Acids | Acceptable | |
| Service in Weak Alkalies | Acceptable | |

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