

# Quadrant EPP TIVAR® H.O.T.

Ultra High Molecular Weight Polyethylene

Quadrant Engineering Plastic Products

Message:

Quadrant EPP TIVAR® H.O.T. is an Ultra High Molecular Weight Polyethylene product. It is available in North America. Typical application: Food Contact Applications.  
Characteristics include:  
Flame Rated  
Chemical Resistant  
Antioxidant  
Food Contact Acceptable  
Heat Stabilizer

| General Information |                             |                   |             |
|---------------------|-----------------------------|-------------------|-------------|
| Additive            | Antioxidant                 |                   |             |
|                     | Heat Stabilizer             |                   |             |
| Features            | Acid Resistant              |                   |             |
|                     | Alcohol Resistant           |                   |             |
|                     | Alkali Resistant            |                   |             |
|                     | Antioxidant                 |                   |             |
|                     | Food Contact Acceptable     |                   |             |
|                     | Heat Stabilized             |                   |             |
|                     | Hydrocarbon Resistant       |                   |             |
|                     | Machinable                  |                   |             |
|                     | Solvent Resistant           |                   |             |
|                     | Ultra High Molecular Weight |                   |             |
| Agency Ratings      | FDA 21 CFR 177.1520(c) 2.1  |                   |             |
|                     | FDA 21 CFR 177.1520(c) 2.2  |                   |             |
|                     | FDA 21 CFR 178.2010         |                   |             |
| Forms               | Preformed Parts             |                   |             |
|                     | Profiles                    |                   |             |
|                     | Rod                         |                   |             |
|                     | Sheet                       |                   |             |
|                     | Tubing                      |                   |             |
| Physical            | Nominal Value               | Unit              | Test Method |
| Specific Gravity    | 0.940                       | g/cm <sup>3</sup> | ASTM D792   |
| Water Absorption    |                             |                   | ASTM D570   |
| 24 hr               | < 0.010                     | %                 |             |

|                                                         |                       |             |                    |
|---------------------------------------------------------|-----------------------|-------------|--------------------|
| Saturation                                              | < 0.010               | %           |                    |
| <b>Hardness</b>                                         | <b>Nominal Value</b>  | <b>Unit</b> | <b>Test Method</b> |
| Durometer Hardness (Shore D)                            | 68                    |             | ASTM D2240         |
| <b>Mechanical</b>                                       | <b>Nominal Value</b>  | <b>Unit</b> | <b>Test Method</b> |
| Tensile Modulus                                         | 689                   | MPa         | ASTM D638          |
| Tensile Strength (Ultimate)                             | 40.0                  | MPa         | ASTM D638          |
| Tensile Elongation (Break)                              | 300                   | %           | ASTM D638          |
| Flexural Modulus                                        | 758                   | MPa         | ASTM D790          |
| Flexural Strength (Yield)                               | 24.1                  | MPa         | ASTM D790          |
| Compressive Modulus                                     | 552                   | MPa         | ASTM D695          |
| Compressive Strength (10% Strain,23°C)                  | 20.7                  | MPa         | ASTM D695          |
| Shear Strength                                          | 33.1                  | MPa         | ASTM D732          |
| Coefficient of Friction (vs. Steel - Static)            | 0.12                  |             | Internal Method    |
| <b>Impact</b>                                           | <b>Nominal Value</b>  | <b>Unit</b> | <b>Test Method</b> |
| Notched Izod Impact                                     | No Break              |             | ASTM D256A         |
| <b>Thermal</b>                                          | <b>Nominal Value</b>  | <b>Unit</b> | <b>Test Method</b> |
| Deflection Temperature Under Load (1.8 MPa, Unannealed) | 46.7                  | °C          | ASTM D648          |
| Maximum Use Temperature - Long Term, Air                | 135                   | °C          |                    |
| Limiting Pressure Velocity <sup>1</sup>                 | 0.0701                | MPa·m/s     | Internal Method    |
| Peak Crystallization Temperature (DSC)                  | 135                   | °C          | ASTM D3418         |
| CLTE - Flow <sup>2</sup> (-40 to 149°C)                 | 3.4E-4                | cm/cm/°C    | ASTM E831          |
| Thermal Conductivity                                    | 0.41                  | W/m/K       |                    |
| <b>Electrical</b>                                       | <b>Nominal Value</b>  | <b>Unit</b> | <b>Test Method</b> |
| Surface Resistivity                                     | 1.0E+13               | ohms        | ASTM D257          |
| Dielectric Strength <sup>3</sup>                        | 91                    | kV/mm       | ASTM D149          |
| Dielectric Constant (1 MHz)                             | 2.30                  |             | ASTM D150          |
| Dissipation Factor (1 MHz)                              | 5.0E-4                |             | ASTM D150          |
| <b>Flammability</b>                                     | <b>Nominal Value</b>  | <b>Unit</b> | <b>Test Method</b> |
| Flame Rating (3.18 mm, Estimated Rating)                | HB                    |             | UL 94              |
| <b>NOTE</b>                                             |                       |             |                    |
| 1.                                                      | 4:1 safety factor     |             |                    |
| 2.                                                      | 68°F                  |             |                    |
| 3.                                                      | Method A (Short-Time) |             |                    |

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