# Poly-Texx AR

Engineering plastic utilized in wear and bearing applications that excels in highly abrasive environments

## General Information

***Chemical Designation:***

*UHMW-PE (Ultra High Molecular Weight Polyethylene)*

***Fillers:***

*Glass*

***Color:***

*Black, Gray, or Orange*

***Specific Gravity:***

*0.933*

*Poly-Texx AR is the most abrasive resistant filled polymer material Poly-Tech offers. Its natural color is dark gray to black and is UV stable. Typical applications include sleeve and flanged bearings, slide rails, and thrust washers for high aggregate bearing applications. Its excellent chemical resistance makes it suitable for chemical and solvent rich environments. Its main attribute is its resistance to abrasion from particulate such as sand, wood pulp, and paper dust.*

*Available in many shapes and sizes, it is easily machined and can be sawed, milled, and turned with most metal working equipment. Poly-Texx AR is a great choice for many demanding applications.*

## Technical Information

| Specification | Test | Value | Units |
|---|---|---|---|
| Density, 73°F | D792 | .932-.96 | g/cm3 |
| Tensile Strength @ Yield, 73°F | D638 | 2,900 | psi |
| Tensile Modulus of Elasticity, 73°F | D638 | | psi |
| Tensile Elongation (at break), 73°F | D638 | 330 | >50% (No Break) |
| Flexural Strength, 73°F | D790 | | psi |
| Flexural Modulus of Elasticity | D790 | | psi |
| Shear Strength, 73°F | D732 | | psi |
| Compressive Strength – Ultimate | | 1,500 | psi |
| Compressive Strength at 2% Deformation | D695 | 1,200 | psi |
| Compressive Strength at 10% Deformation | D695 | N/A | psi |
| Deformation Under Load | | 10 | % |
| Compressive Modulus of Elasticity, 73°F | D695 | | |
| Compressive Strength ⊥ to Laminate (Modulus) | | | psi |
| Compressive Strength ⊥ to Laminate (Yield) | | 1,500 | psi |
| Compressive Strength ⊥ to Laminate (Ultimate) | | 3,100 | psi |
| Hardness, Durometer (Shore “D” scale) | D2240 | 62-67 | |
| Hardness, Rockwell (Scale as noted) | D785 | | Rockwell M |
| Izod Impact, Notched @ 73°F | D256 Type A | >120 | ft.lbs/in. of notch |
| Coefficient of Friction (Dry vs Steel) Static | PTM 55007 | 0.14 | |
| Coefficient of Friction (Dry vs Steel) Dynamic | PTM 55007 | 0.09 | |
| Maximum Static Bearing Load (P) | PTM 55007 | 3,100 | psi |
| Maximum Unlubricated No Load Bearing Velocity (V) | PTM 55007 | 50 | ft/minute |
| Maximum Limiting PV (Unlubricated) | PTM 55007 | 5,000 | psi x ft/min. |
| Wear Factor “K” x 10-10 | PTM 55010 | | Cubic in.-min/ft.lbs.hr |
| Sand Wheel Wear/Abrasion Test | | 120 | Virgin UHMW=100 |
| Minimum Mating Surface Hardness | | 20 | Rockwell (Brinnell) |
| Coefficient of Linear Thermal Expansion | E-831 (TMA) | 7.8 | in/in/°F x 10-5 |
| Coefficient of Thermal Expansion // to Laminates | E-831 (TMA) | 7.8 | in/in/°F x 10-5 |
| Coefficient of Thermal Expansion I to Laminates | E-831 (TMA) | 7.8 | in/in/°F x 10-5 |
| Softening Point | | | °F |
| Heat Deflection Temperature 264 psi | D648 | 180 | °F |
| Embrittlement Temperature | | Cryogenic | °F Min. |
| Continuous Service Temperature in Air | | 180 | °F Max. |
| Short Term Service Temperature | | 212 | °F Max. |
| Tg-Glass Transition (Amorphous) | D3418 | | °F |
| Melting Point (Crystalline) Peak | D3418 | 280 | °F |
| Thermal Conductivity | F433 | | BTU-in/(hr/ft2°F) |
| Dielectric Strength Short Term | D149 | 900 | KV/mil |
| Volume Resistivity | D257 | <1015 | Ohm/cm |
| Surface Resistivity | D257 | <1015 | Ohm |
| Dielectric Constant, 106 Hz | D150 | 2.3 | |
| Dissipation Factor, 106 Hz | D150 | | |
| Flammability @ 3.1mm(1/8 in.) UL94 | UL94 | HB | |
| Arc Resistance | | | seconds |
| Water Absorption, Immersion 24 Hours | D570 (2) | Nil | % |
| Water Absorption, Immersion Saturation | D570 (2) | Nil | % |
| Machinability Rating | | 3 | 1=easy, 10=difficult |
| Rod Diameter Availability (Off the Shelf) | 1 | 6.0 | inches |
| Sheet Thickness Availability (Off the Shelf) | .25 | 3.0 | inches |
| Characteristics / Attributes | Highest Abrasion Resistance / Self Lubricating / Higher Cost / UV Resistant | | |

*Thank you for your interest in our materials. All statements, technical information and recommendations presented are in good faith, based upon tests believed to be reliable and practical field experience. Poly-Tech is not responsible for its accuracy or completeness. It is our recommendation and the customer’s responsibility to determine the suitability of any material for any given application.*