# UTEC 6540

Ultra High Molecular Weight Polyethylene

Braskem

## Message:

Description:
UTEC6540 is an Ultra High Molecular Weight Polyethylene with a molecular weight about 10 times higher than High Density Polyethylene (HDPE) resins. This extremely high molecular weight yields several unique properties to this polymer such as high abrasion resistance and impact strength and low coefficient of friction, what makes it a self-lubricating material.
Applications:
Applications which require highest wear resistance - technical parts RAM extruded and compression molded sheets, rods and profiles.

| General Information | |
|---|---|
| Features | Ultra high molecular weight<br>Low friction coefficient<br>Impact resistance, good<br>Good wear resistance<br>Good wear resistance<br>Self-lubricating |
| Uses | Bar<br>Engineering accessories<br>Sheet<br>Profile |
| Agency Ratings | FDA 21 CFR 177.1520 |
| Processing Method | Compression molding<br>Plunger press-out |

| Physical | Nominal Value | Unit | Test Method |
|---|---|---|---|
| Specific Gravity | 0.925 | g/cm³ | ASTM D792 |
| Apparent Density | 0.45 | g/cm³ | ASTM D1895 |
| Water Absorption (24 hr) | 0.010 | % | ASTM D570 |
| Intrinsic Viscosity | 28 | dl/g | ASTM D4020 |
| Average Molecular Weight | 8000000 | g/mol | Internal method |
| Average Particle Size [1] | 190 | µm | ASTM D1921 |
| Specific Melt Enthalpy | 34.0 | cal/g | ASTM D3418 |
| Abrasion Index | | | Internal method |
| -- [2] | 76 | | Internal method |
| -- [3] | 20 | | Internal method |
| **Hardness** | **Nominal Value** | **Unit** | **Test Method** |
| Durometer Hardness | | | ASTM D2240, ISO 868 |
| Shaw D | 64 | | ASTM D2240, ISO 868 |

| | | | |
|---|---|---|---|
| Shaw D, 15 seconds | 59 | | ASTM D2240, ISO 868 |
| **Mechanical** | **Nominal Value** | **Unit** | **Test Method** |
| Tensile Strength | | | ASTM D638, ISO 527-2 |
| Yield | > 17.0 | MPa | ASTM D638, ISO 527-2 |
| Fracture | > 30.0 | MPa | ASTM D638, ISO 527-2 |
| Tensile Elongation | | | |
| Fracture | > 300 | % | ASTM D638 |
| Fracture | > 350 | % | ISO 527-2 |
| Coefficient of Friction | | | ASTM D1894 |
| Dynamic | 0.090 | | ASTM D1894 |
| Static | 0.10 | | ASTM D1894 |
| **Impact** | **Nominal Value** | **Unit** | **Test Method** |
| Charpy Notched Impact Strength [4] | > 100 | $kJ/m^2$ | ISO 11542-2 |
| Notched Izod Impact | No Break | | ASTM D256 |
| **Thermal** | **Nominal Value** | **Unit** | **Test Method** |
| Deflection Temperature Under Load | | | ASTM D648 |
| 0.45 MPa, not annealed | 79.0 | °C | ASTM D648 |
| 1.8 MPa, not annealed | 48.0 | °C | ASTM D648 |
| Vicat Softening Temperature | 128 | °C | ISO 306/A, ASTM D1525 [5] |
| Peak Melting Temperature | 133 | °C | ASTM D3418 |
| CLTE - Flow (-30 to 100°C) | 1.5E-4 | cm/cm/°C | ASTM D696 |
| Specific Heat | 2010 | J/kg/°C | ASTM E1269 |
| Thermal Conductivity (23°C) | 0.40 | W/m/K | ASTM C177 |
| **Electrical** | **Nominal Value** | **Unit** | **Test Method** |
| Surface Resistivity | > 1.0E+12 | ohms | ASTM D257 |
| Volume Resistivity | > 1.0E+14 | ohms·cm | ASTM D257 |
| Dielectric Strength | 90 | kV/mm | ASTM D149 |
| Dielectric Constant (1 kHz) | 2.30 | | ASTM D150 |
| **NOTE** | | | |
| 1. | Dp50 | | |
| 2. | reference ISO 15527 = 100 | | |
| 3. | reference Stainless Steel SAE1020 = 100 | | |
| 4. | Determined with double-notched specimens (14° v-notch on both sides) in accordance with ISO 11542-2. | | |
| 5. | 压 力1 (10N) | | |



## Recommended distributors for this material

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