# ULTEM™ Resin 1110

REGION EUROPE

## DESCRIPTION

Enhanced flow Polyetherimide (Tg 217C). ECO Conforming.

| INDUSTRY | SUB INDUSTRY |
|---|---|
| Automotive | Heavy Truck, Automotive Under the Hood, Aerospace, Motorcycle, Recreational/Specialty Vehicles |
| Building and Construction | Building Component, Water Management |
| Consumer | Consumer Goods, Sport/Leisure, Personal Accessory, Home Appliances, Commercial Appliance, Furniture |
| Electrical and Electronics | Energy Management, Drone Solutions, Mobile Phone - Computer - Tablets, Circuit Boards/Additives, Lighting, Printer Copier, Speaker - Earphone, Wireless Communication |
| Hygiene and Healthcare | Personal and Professional Hygiene, Pharmaceutical Packaging and Drug Delivery, Surgical devices, General Healthcare, Patient Testing |
| Industrial | Electrical, Material Handling, Textile, Eyewear |
| Mass Transportation | Rail |
| Packaging | Industrial Packaging |

## TYPICAL PROPERTY VALUES

Revision 20231109

| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| **MECHANICAL** | | | |
| **Taber Abrasion, CS-17, 1 kg** | 10 | mg/1000cy | SABIC method |
| **Tensile Stress, yield, 50 mm/min** | 110 | MPa | ISO 527 |
| **Tensile Stress, break, 50 mm/min** | 80 | MPa | ISO 527 |
| **Tensile Strain, yield, 50 mm/min** | 6 | % | ISO 527 |
| **Tensile Strain, break, 50 mm/min** | 10 | % | ISO 527 |
| **Tensile Modulus, 1 mm/min** | 3500 | MPa | ISO 527 |
| **Flexural Stress, yield, 2 mm/min** | 140 | MPa | ISO 178 |
| **Flexural Modulus, 2 mm/min** | 3300 | MPa | ISO 178 |
| **Ball Indentation Hardness, H358/30** | 145 | MPa | ISO 2039-1 |
| **IMPACT** | | | |
| **Izod Impact, notched 80*10*4 +23°C** | 4 | kJ/m² | ISO 180/1A |
| **Izod Impact, notched 80*10*4 -30°C** | 4 | kJ/m² | ISO 180/1A |
| **THERMAL** | | | |
| **Thermal Conductivity** | 0.26 | W/m·°C | ISO 8302 |
| **CTE, 23°C to 150°C, flow** | 5.E-05 | 1/°C | ISO 11359-2 |
| **CTE, 23°C to 150°C, xflow** | 5.E-05 | 1/°C | ISO 11359-2 |
| **Ball Pressure Test, 125°C +/- 2°C** | PASSES | - | IEC 60695-10-2 |
| **Vicat Softening Temp, Rate A/50** | 210 | °C | ISO 306 |
| **Vicat Softening Temp, Rate B/50** | 200 | °C | ISO 306 |
| **Vicat Softening Temp, Rate B/120** | 205 | °C | ISO 306 |
| **HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm** | 200 | °C | ISO 75/Be |
| **HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm** | 185 | °C | ISO 75/Ae |
| **Relative Temp Index, Elec** [1] | 170 | °C | UL 746B |

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| PROPERTIES | TYPICAL VALUES | UNITS | TEST METHODS |
|---|---|---|---|
| Relative Temp Index, Mech w/impact [1] | 170 | °C | UL 746B |
| Relative Temp Index, Mech w/o impact [1] | 170 | °C | UL 746B |
| PHYSICAL | | | |
| Mold Shrinkage on Tensile Bar, flow | 0.4 – 0.6 | % | SABIC method |
| Density | 1.37 | g/cm³ | ISO 1183 |
| Water Absorption, (23°C/saturated) | 1.2 | % | ISO 62-1 |
| Moisture Absorption (23°C / 50% RH) | 0.65 | % | ISO 62 |
| Melt Volume Rate, MVR at 340°C/5.0 kg | 12 | cm³/10 min | ISO 1133 |
| Melt Volume Rate, MVR at 360°C/5.0 kg | 21 | cm³/10 min | ISO 1133 |
| ELECTRICAL | | | |
| Volume Resistivity | 1.E+15 | Ω.cm | IEC 60093 |
| Surface Resistivity, ROA | >1.E+15 | Ω | IEC 60093 |
| Dielectric Strength, in oil, 3.2 mm | 17.2 | kV/mm | IEC 60243-1 |
| Dissipation Factor, 50/60 Hz | 0.0016 | - | IEC 60250 |
| Comparative Tracking Index [2] | 175 | V | IEC 60112 |
| Comparative Tracking Index, M [2] | 125 | V | IEC 60112 |
| Relative Permittivity, 50/60 Hz | 3.5 | - | IEC 60250 |
| Comparative Tracking Index (UL) {PLC} | 4 | PLC Code | UL 746A |
| Hot-Wire Ignition (HWI), PLC 1 | ≥3 | mm | UL 746A |
| Hot-Wire Ignition (HWI), PLC 2 | ≥0.75 | mm | UL 746A |
| High Amp Arc Ignition (HAI), PLC 3 | ≥3 | mm | UL 746A |
| High Amp Arc Ignition (HAI), PLC 4 | ≥0.75 | mm | UL 746A |
| High Voltage Arc Track Rate {PLC} | 2 | PLC Code | UL 746A |
| Arc Resistance, Tungsten {PLC} | 5 | PLC Code | ASTM D495 |
| FLAME CHARACTERISTICS [1] | | | |
| UL Yellow Card Link | E121562-101048292 | - | - |
| UL Recognized, 94-5VA Flame Class Rating | ≥3 | mm | UL 94 |
| UL Recognized, 94V-0 Flame Class Rating | ≥0.75 | mm | UL 94 |
| Glow Wire Flammability Index 960°C, passes at [2] | 3.2 | mm | IEC 60695-2-12 |
| Oxygen Index (LOI) | 47 | % | ISO 4589 |
| INJECTION MOLDING | | | |
| Drying Temperature | 150 | °C | |
| Drying Time | 4 – 6 | Hrs | |
| Maximum Moisture Content | 0.02 | % | |
| Melt Temperature | 360 – 400 | °C | |
| Nozzle Temperature | 360 – 400 | °C | |
| Front - Zone 3 Temperature | 370 – 410 | °C | |
| Middle - Zone 2 Temperature | 360 – 400 | °C | |
| Rear - Zone 1 Temperature | 340 – 380 | °C | |
| Hopper Temperature | 80 – 100 | °C | |
| Mold Temperature | 140 – 180 | °C | |

(1) UL Ratings shown on the technical datasheet might not cover the full range of thicknesses and colors. For details, please see the UL Yellow Card.
(2) Value shown here is based on internal measurement.

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