



ULTEM® 1010F

Europe-Africa-Middle East: **COMMERCIAL**

Transparent, enhanced flow Polyetherimide (Tg 217C). ECO Conforming, UL94 V0 and 5VA listing. US FDA and EU Food Contact compliant, NSF 51 listing, ISO 10993 compliant in recognized colors.

Features

Flame Retardant

Opaque

| TYPICAL PROPERTIES ¹ | TYPICAL VALUE | UNIT | STANDARD |
|---|---------------|-------------------|----------------|
| MECHANICAL | | | |
| Taber Abrasion, CS-17, 1 kg | 10 | mg/1000cy | GE Method |
| Tensile Stress, yield, 50 mm/min | 105 | MPa | ISO 527 |
| Tensile Stress, break, 50 mm/min | 85 | MPa | ISO 527 |
| Tensile Strain, yield, 50 mm/min | 6 | % | ISO 527 |
| Tensile Strain, break, 50 mm/min | 60 | % | ISO 527 |
| Tensile Modulus, 1 mm/min | 3200 | MPa | ISO 527 |
| Flexural Strength, yield, 2 mm/min | 160 | MPa | ISO 178 |
| Flexural Modulus, 2 mm/min | 3300 | MPa | ISO 178 |
| Hardness, H358/30 | 140 | MPa | ISO 2039-1 |
| IMPACT | | | |
| Izod Impact, unnotched 80*10*4 +23°C | NB | kJ/m ² | ISO 180/1U |
| Izod Impact, unnotched 80*10*4 -30°C | NB | kJ/m ² | ISO 180/1U |
| Izod Impact, notched 80*10*4 +23°C | 5 | kJ/m ² | ISO 180/1A |
| Izod Impact, notched 80*10*4 -30°C | 5 | kJ/m ² | ISO 180/1A |
| THERMAL | | | |
| Thermal Conductivity | 0.21 | 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 A/50 | 215 | °C | ISO 306 |
| Vicat B/50 | 211 | °C | ISO 306 |
| Vicat B/120 | 212 | °C | ISO 306 |
| HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm | 195 | °C | ISO 75/Be |
| HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm | 190 | °C | ISO 75/Ae |
| Relative Temp Index, Elec | 170 | °C | UL 746B |

1) Typical values only. Variations within normal tolerances are possible for various colours. All values are measured at least after 48 hours storage at 23°C/50% relative humidity. All properties, except the melt volume rate are measured on injection moulded samples. All samples are prepared according to ISO 294.

2) Only typical data for material selection purpose. Not to be used for part or tool design.
3) This rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.
4) Own measurement according to UL.

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| TYPICAL PROPERTIES ¹ | TYPICAL VALUE | UNIT | STANDARD |
|---|---------------|-------------------------|----------------|
| Relative Temp Index, Mech w/impact | 170 | °C | UL 746B |
| Relative Temp Index, Mech w/o impact | 170 | °C | UL 746B |
| PHYSICAL | | | |
| Mold Shrinkage on Tensile Bar, flow (2) | 0.5 - 0.7 | % | ASTM D 955 |
| Density | 1.27 | g/cm ³ | ISO 1183 |
| Water Absorption, (23°C/sat) 1L | 1.25 | % | ISO 62 |
| Moisture Absorption (23°C / 50% RH) 1L | 0.7 | % | ISO 62 |
| Melt Volume Rate, MVR at 340°C/5.0 kg | 13 | cm ³ /10 min | ISO 1133 |
| ELECTRICAL | | | |
| Volume Resistivity | 1.E+15 | Ohm-cm | IEC 60093 |
| Surface Resistivity, ROA | >1.E+15 | Ohm | IEC 60093 |
| Dielectric Strength, in oil, 1.6 mm | 28 | kV/mm | IEC 60243-1 |
| Relative Permittivity, 50/60 Hz | 2.9 | - | IEC 60250 |
| Relative Permittivity, 1 MHz | 2.9 | - | IEC 60250 |
| Dissipation Factor, 50/60 Hz | 0.0005 | - | IEC 60250 |
| Dissipation Factor, 1 MHz | 0.006 | - | IEC 60250 |
| Dissipation Factor, 2450 MHz | 0.0025 | - | IEC 60250 |
| Comparative Tracking Index | 150 | V | IEC 60112 |
| Comparative Tracking Index, M | 100 | V | IEC 60112 |
| FLAME CHARACTERISTICS | | | |
| UL Recognized, 94V-0 Flame Class Rating (3) | 0.7 | mm | UL 94 |
| UL Recognized, 94-5VA Rating (3) | 3 | mm | UL 94 |
| Glow Wire Flammability Index 960°C, passes at | 3.2 | mm | IEC 60695-2-12 |
| Oxygen Index (LOI) | 47 | % | ISO 4589 |

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| PROCESSING PARAMETERS | TYPICAL VALUE | UNIT |
|-----------------------------|---------------|------|
| Injection Molding | | |
| Drying Temperature | 150 | °C |
| Drying Time | 4 - 6 | hrs |
| Maximum Moisture Content | 0.02 | % |
| Melt Temperature | 370 - 410 | °C |
| Nozzle Temperature | 360 - 410 | °C |
| Front - Zone 3 Temperature | 370 - 420 | °C |
| Middle - Zone 2 Temperature | 360 - 410 | °C |
| Rear - Zone 1 Temperature | 350 - 400 | °C |
| Hopper Temperature | 80 - 120 | °C |
| Mold Temperature | 140 - 180 | °C |

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