IEMAI®
3D printing solutions for high performance materials

# PP Technical Data Sheet (TDS)

Polypropylene (PP) is a durable, high toughness and exceptional fatigue resistance. It has good resistance in chemical, thermal and electrical. It is one of the commonly used plastic on earth such as electrical components and prototyping.

It is commonly applied in field such as functional prototypes, guides, sleeves, and protective cases.

| Mechanical Properties | Injection Molding | |
|---|---|---|
| | Typical Value | Test Method |
| Tensile Modulus | 380MPa | ISO 527 |
| Tensile Stress at Yield | 13MPa | ISO 527 |
| Tensile Stress at Break | No break within testing range | ISO 527 |
| Elongation at Yield | 13.5% | ISO 527 |
| Elongation at Break | >210% | ISO 527 |
| Flexural Strength | 13MPa | ISO 178 |
| Flexural Modulus | 360MPa | ISO 178 |
| Izod Impact Strength (at 23 °C) | - | - |
| Charpy Impact Strength (at 23 °C) | 10.5 kJ/m^2 | ISO 179 |
| Hardness | 54 (Shore D) | ISO 868 |

| Electrical Properties | Value | Test Method |
|---|---|---|
| Volume Resistivity | > 10^16 Ohm.cm | (Typical Value) |
| Dissipation factor (at 1 MHz) | - | - |
| Dielectric constant (at 1 MHz) | - | - |

| Thermal Properties | Typical Value | Test Method |
|---|---|---|
| Melt Mass-Flow Rate (MFR) | 20 g/ 10 min | ISO 1133 (23°C, 2.16 Kg) |
| Heat Detection (at 0.455 MPa) | - | - |
| Heat Deflection (at 1.82MPa) | - | - |

| | | |
|---|---|---|
| Vicat Softening Temperature at 5N | 114°C | ISO 306 |
| Glass Transition | - | - |
| Coefficient of Thermal Expansion | - | - |
| Melting Temperature | 132°C | DSC |
| Thermal Shrinkage | - | - |

| Other Properties | Value | Test Method |
|---|---|---|
| Specific Gravity | 0.89 | ISO 1183 |
| Flame Classification | - | - |
| Haze (1 mmt) | 28% | ISO 14782 |
| Glass | 90% | ASTM D523 |

| Print Recommendation | |
|---|---|
| Nozzle Temperature | 230 -260 ºC |
| Bed Temperature | 90 -110 ºC |
| Print Speed | 30-70 mm/s |
| Chamber Temperature | 60-80 °C |
| Cooling Fan | 0-50% |