

Torlon® 4200

polyamide-imide

Torlon® 4200 is an unreinforced, unpigmented grade of polyamide-imide (PAI) resin for extrusion. This grade is designed for applications in the semiconductor industry which cannot tolerate particulates such as metals or inorganic particles migrating from the polymer.

highest strength and stiffness of any thermoplastic up to 275°C (525°F). It has outstanding resistance to wear, creep, and chemicals.

- High Flow: Torlon® 4200 EXT

Torlon® 4200 has the best impact resistance and greatest elongation of all the Torlon® grades. Torlon® PAI has the

General

| | | |
|-------------------|---|---|
| Material Status | • Commercial: Active | |
| Availability | • Africa & Middle East • Asia Pacific • Europe | • Latin America • North America |
| Features | • Chemical Resistant • Creep Resistant • Ductile • Flame Retardant • Good Electrical Properties | • High Heat Resistance • High Temperature Strength • Ultra High Impact Resistance • Wear Resistant |
| Uses | • Electrical/Electronic Applications • Machine/Mechanical Parts | • Semiconductor Molding Compounds |
| RoHS Compliance | • Contact Manufacturer | |
| Forms | • Pellets | |
| Processing Method | • Injection Molding • Machining | • Profile Extrusion |

| Physical | Typical Value | Unit | Test method |
|----------------------------|---------------|------|-------------|
| Density / Specific Gravity | 1.42 | | ASTM D792 |
| Molding Shrinkage - Flow | 0.60 to 0.85 | % | ASTM D955 |
| Water Absorption (24 hr) | 0.33 | % | ASTM D570 |

| Mechanical | Typical Value | Unit | Test method |
|-------------------------------|---------------|------|-------------|
| Tensile Modulus | | | |
| -- ¹ | 4480 | MPa | ASTM D638 |
| -- | 4900 | MPa | ASTM D1708 |
| Tensile Strength ¹ | 152 | MPa | ASTM D638 |
| Tensile Stress | 192 | MPa | ASTM D1708 |
| Tensile Elongation | | | |
| Break ¹ | 7.6 | % | ASTM D638 |
| Break | 15 | % | ASTM D1708 |
| Flexural Modulus | | | ASTM D790 |
| 23°C | 5030 | MPa | |
| 232°C | 3590 | MPa | |

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| Mechanical | Typical Value | Unit | Test method |
|-----------------------------------|---------------|----------|-------------|
| Flexural Strength | | | ASTM D790 |
| 23°C | 241 | MPa | |
| 232°C | 118 | MPa | |
| Compressive Modulus | 4000 | MPa | ASTM D695 |
| Compressive Strength | 221 | MPa | ASTM D695 |
| Poisson's Ratio | 0.45 | | ASTM E132 |
| Impact | Typical Value | Unit | Test method |
| Notched Izod Impact | 140 | J/m | ASTM D256 |
| Unnotched Izod Impact | 1100 | J/m | ASTM D4812 |
| Thermal | Typical Value | Unit | Test method |
| Deflection Temperature Under Load | | | ASTM D648 |
| 1.8 MPa, Unannealed | 278 | °C | |
| CLTE - Flow | 3.1E-5 | cm/cm/°C | ASTM E831 |
| Thermal Conductivity | 0.26 | W/m/K | ASTM C177 |
| Electrical | Typical Value | Unit | Test method |
| Surface Resistivity | 5.0E+18 | ohms | ASTM D257 |
| Volume Resistivity | 2.0E+17 | ohms·cm | ASTM D257 |
| Dielectric Strength | 23 | kV/mm | ASTM D149 |
| Dielectric Constant | | | ASTM D150 |
| 60 Hz | 4.20 | | |
| 1 MHz | 3.90 | | |
| Dissipation Factor | | | ASTM D150 |
| 60 Hz | 0.026 | | |
| 1 MHz | 0.031 | | |

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| Injection | Typical Value | Unit |
|------------------------|----------------------|------|
| Drying Temperature | 177 | °C |
| Drying Time | 3.0 | hr |
| Suggested Max Moisture | 0.050 | % |
| Rear Temperature | 304 | °C |
| Nozzle Temperature | 371 | °C |
| Mold Temperature | 199 to 216 | °C |
| Back Pressure | 6.89 | MPa |
| Screw Speed | 50 to 100 | rpm |
| Screw L/D Ratio | 18.0:1.0 to 24.0:1.0 | |

Notes

Typical properties: these are not to be construed as specifications.

¹ Type I

www.solvay.com

SpecialtyPolymers.EMEA@solvay.com | Europe, Middle East and Africa

SpecialtyPolymers.Americas@solvay.com | Americas

SpecialtyPolymers.Asia@solvay.com | Asia and Australia

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