

Solvay Specialty Polymers Torlon® 4301 Polyamide-imide (PAI)

Category : Polymer , Thermoplastic , Polyamide-imide (PAI) , Polyamide-Imide, Extruded

Material Notes:

Torlon® 4301 is a wear-resistant grade of polyamide-imide (PAI) resin. It has a good balance of mechanical properties and wear resistance. It offers high flexural and compressive strength with a low coefficient of friction and outstanding wear resistance at both high velocity and high pressure conditions. Features: Flame Retardant; Good Chemical Resistance; Good Creep Resistance; Good Wear Resistance; High Heat Resistance; High Temperature Strength; Low Friction; Self Lubricating; Semi Conductive Uses: Aerospace Applications; Aircraft Applications; Automotive Applications; Bearings; Bushings; Cams; Gears; Industrial Applications; Industrial Parts; Machine/Mechanical Parts; Metal Replacement; Oil/Gas Applications; Rollers; Sealing Devices; Seals; Thrust Washer; Transmission Applications; Washer Additional Properties: Coefficient of Linear Thermal Expansion - ASTM D696 2.5E-5 cm/cm/°C; Wear Factor - ASTM D3702 14.0 in³·min⁻¹·ft·lb·hr; Wear Factor - ASTM D3702 17.0 in³·min⁻¹·ft·lb·hr; Wear Factor - ASTM D3702 9.00 in³·min⁻¹·ft·lb·hr; Wear Factor - ASTM D3702 0.400 in³·min⁻¹·ft·lb·hr Automotive Specifications BOSCH N28 BN05-OX2 N28 BN05-OX2, BN0512-CDSX-0Cgr01SO Information provided by Solvay Specialty Polymers.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Solvay-Specialty-Polymers-Torlon-4301-Polyamide-imide-PAI.php

| Physical Properties | Metric | English | Comments |
|-----------------------------|---------------------------|---------------------------|-----------|
| Density | 1.46 g/cc | 0.0527 lb/in³ | ASTM D792 |
| Water Absorption | 0.28 % @Time 86400 sec | 0.28 % @Time 24.0 hour | ISO 62 |
| Linear Mold Shrinkage, Flow | 0.0035 - 0.0060 cm/cm | 0.0035 - 0.0060 in/in | |

| Mechanical Properties | Metric | English | Comments |
|-----------------------|---------------------------------|-----------------------------------|------------|
| Tensile Strength | 113 MPa | 16400 psi | ASTM D638 |
| Tensile Stress | 163 MPa | 23600 psi | ASTM D1708 |
| Tensile Modulus | 6.55 GPa | 950 ksi | ASTM D638 |
| Flexural Strength | 112 MPa @Temperature 232 °C | 16200 psi @Temperature 450 °F | ASTM D790 |
| | 215 MPa @Temperature 23.0 °C | 31200 psi @Temperature 73.4 °F | ASTM D790 |
| Flexural Modulus | 4.96 GPa @Temperature 232 °C | 719 ksi @Temperature 450 °F | ASTM D790 |
| | 6.89 GPa | 999 ksi | ASTM D790 |

| Mechanical Properties | @Temperature 23.0 Metric °C | @Temperature 73.4 English °F | Comments |
|------------------------|-----------------------------------|------------------------------------|-----------|
| Compressive Strength | 166 MPa | 24100 psi | ASTM D695 |
| Compressive Modulus | 5.31 GPa | 770 ksi | ASTM D695 |
| Izod Impact, Notched | 0.640 J/cm | 1.20 ft-lb/in | ASTM D256 |
| Izod Impact, Unnotched | 4.10 J/cm | 7.68 ft-lb/in | ASTM D256 |

| Thermal Properties | Metric | English | Comments |
|--|-------------|--|-----------------------|
| Thermal Conductivity | 0.530 W/m-K | 3.68 BTU-in/hr-ft ² - °F | ASTM C177 |
| Deflection Temperature at 1.8 MPa (264 psi) | 279 °C | 534 °F | Unannealed; ASTM D648 |

| Electrical Properties | Metric | English | Comments |
|-----------------------|-----------------|-----------------|-----------|
| Volume Resistivity | 8.00e+15 ohm-cm | 8.00e+15 ohm-cm | ASTM D257 |
| Surface Resistance | 8.00e+17 ohm | 8.00e+17 ohm | ASTM D257 |

| Processing Properties | Metric | English | Comments |
|-------------------------|-----------------|-----------------|----------|
| Rear Barrel Temperature | 304 °C | 579 °F | |
| Nozzle Temperature | 371 °C | 700 °F | |
| Mold Temperature | 199 - 216 °C | 390 - 421 °F | |
| Drying Temperature | 177 °C | 351 °F | |
| | @Time 10800 sec | @Time 3.00 hour | |
| Moisture Content | <= 0.050 % | <= 0.050 % | |
| Back Pressure | 6.89 MPa | 999 psi | |
| Screw Speed | 50 - 100 rpm | 50 - 100 rpm | |

| Descriptive Properties | Value | Comments |
|------------------------|---------------------------|----------|
| Additive | PTFE + Graphite Lubricant | |
| Availability | Africa & Middle East | |
| | Asia Pacific | |
| | Europe | |
| | Latin America | |

| Descriptive Properties | Value | Comments |
|------------------------|---|----------|
| Form | Pellets | |
| Processing Technique | Injection Molding; Machining; Profile Extrusion | |
| RoHS Compliance | RoHS Compliant | |
| Screw L/D Ratio | 18.0:1.0 to 24.0:1.0 | |

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