# DuPont™ Crastin® LW9320 NC010

## THERMOPLASTIC POLYESTER RESIN

### Product Information

Common features of Crastin® thermoplastic polyester resin include mechanical and physical properties such as stiffness and toughness, heat resistance, friction and wear resistance, excellent surface finishes and good colourability. Crastin® thermoplastic polyester resin has excellent electrical insulation characteristics and high arc-resistant grades are available. Many flame retardant grades have UL recognition (class V-0). Crastin® thermoplastic polyester resin typically has high chemical and heat ageing resistance.

The good melt stability of Crastin® thermoplastic polyester resin normally enables the recycling of properly handled production waste.
If recycling is not possible, DuPont recommends, as the preferred option, incineration with energy recovery (-24 kJ/g of base polymer) in appropriately equipped installations. For disposal, local regulations have to be observed.

Crastin® thermoplastic polyester resin typically is used in demanding applications in the electronics, electrical, automotive, mechanical engineering, chemical, domestic appliances and sporting goods industry.

**Crastin® LW9320 NC010 is a 20% glass fiber reinforced polybutylene terephthalate blend for injection molding. It has improved surface aesthetics, excellent dimensional stability and low warpage characteristics.**

| General information | Value | Unit | Test Standard |
|---|---|---|---|
| Resin Identification | PBT+SAN-GF20 | - | ISO 1043 |
| Part Marking Code | PBT+SAN-GF20 | - | ISO 11469 |
| **Rheological properties** | **Value** | **Unit** | **Test Standard** |
| Melt volume-flow rate | 15 | cm³/10min | ISO 1133 |
| Temperature | 250 | °C | ISO 1133 |
| Load | 5 | kg | ISO 1133 |
| Viscosity number | 120 | cm³/g | ISO 307, 1157, 1628 |
| Molding shrinkage, parallel | 0.4 | % | ISO 294-4, 2577 |
| Molding shrinkage, normal | 0.7 | % | ISO 294-4, 2577 |
| **Mechanical properties** | **Value** | **Unit** | **Test Standard** |
| Tensile Modulus | 7500 | MPa | ISO 527-1/-2 |
| Stress at break | 120 | MPa | ISO 527-1/-2 |
| Strain at break | 2.5 | % | ISO 527-1/-2 |
| Flexural Modulus | 7000 | MPa | ISO 178 |
| Charpy impact strength | | | ISO 179/1eU |
| 73°F | 50 | kJ/m² | |
| -22°F | 45 | kJ/m² | |
| Charpy notched impact strength | | | ISO 179/1eA |
| 73°F | 8.5 | kJ/m² | |
| -22°F | 8 | kJ/m² | |
| Izod notched impact strength | | | ISO 180/1A |
| 73°F | 7 | kJ/m² | |
| -22°F | 7 | kJ/m² | |
| -40°F | 7 | kJ/m² | |
| **Thermal properties** | **Value** | **Unit** | **Test Standard** |
| Melting temperature, 18°F/min | 220 | °C | ISO 11357-1/-3 |
| Glass transition temperature, 18°F/min | 110 | °C | ISO 11357-1/-2 |
| Temp. of deflection under load, 260 psi | 175 | °C | ISO 75-1/-2 |
| Coeff. of linear therm. expansion, parallel | 30 | E-6/K | ISO 11359-1/-2 |
| Coeff. of linear therm. expansion, normal | 100 | E-6/K | ISO 11359-1/-2 |
| Thermal conductivity of melt | 0.24 | W/(m K) | - |
| Spec. heat capacity of melt | 1900 | J/(kg K) | - |
| RTI, electrical | | | UL 746B |
| 30mil | 130 | °C | |
| 60mil | 130 | °C | |
| 120mil | 130 | °C | |



**To find out more, visit DuPont Performance Polymers or contact nearest DuPont location.**

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| | | | |
|---|---|---|---|
| RTI, impact | | | UL 746B |
| 30mil | 125 | °C | |
| 60mil | 125 | °C | |
| 120mil | 130 | °C | |
| RTI, strength | | | UL 746B |
| 30mil | 130 | °C | |
| 60mil | 130 | °C | |
| 120mil | 130 | °C | |
| **Flammability** | **Value** | **Unit** | **Test Standard** |
| Burning Behav. at 60mil nom. thickn. | HB | class | IEC 60695-11-10 |
| Thickness tested | 1.5 | mm | IEC 60695-11-10 |
| UL recognition | yes | - | UL 94 |
| Burning Behav. at thickness h | HB | class | IEC 60695-11-10 |
| Thickness tested | 0.75 | mm | IEC 60695-11-10 |
| UL recognition | yes | - | UL 94 |
| FMVSS Class | B | - | ISO 3795 (FMVSS 302) |
| Burning rate, Thickness 1 mm | 30 | mm/min | ISO 3795 (FMVSS 302) |
| **Electrical properties** | **Value** | **Unit** | **Test Standard** |
| Comparative tracking index | 500 | - | IEC 60112 |
| **Other properties** | **Value** | **Unit** | **Test Standard** |
| Humidity absorption, 80mil | 0.3 | % | Sim. to ISO 62 |
| Density | 1340 | kg/m³ | ISO 1183 |
| Density of melt | 1170 | kg/m³ | - |
| **VDA Properties** | **Value** | **Unit** | **Test Standard** |
| Emission of organic compounds | 130 | µgC/g | VDA 277 |
| Odor test | 3.5 | class | VDA 270 |
| **Injection** | **Value** | **Unit** | **Test Standard** |
| Drying Recommended | yes | - | - |
| Drying Temperature | 120 | °C | - |
| Drying Time, Dehumidified Dryer | 2 - 4 | h | - |
| Processing Moisture Content | ≤0.04 | % | - |
| Melt Temperature Optimum | 250 | °C | - |
| Min. melt temperature | 240 | °C | - |
| Max. melt temperature | 260 | °C | - |
| Mold Temperature Optimum | 80 | °C | - |
| Min. mold temperature | 30 | °C | - |
| Max. mold temperature | 130 | °C | - |
| Hold pressure range | ≥60 | MPa | - |
| Hold pressure time | 3 | s/mm | - |
| Back pressure | As low as possible | | - |
| Ejection temperature | 170 | °C | - |

| **Characteristics** | | | |
|---|---|---|---|
| Processing | • Injection Molding | | |
| Delivery form | • Pellets | | |
| Additives | • Release agent | | |
| Regional Availability | • North America<br>• Europe | • Asia Pacific<br>• South and Central America | • Near East/Africa<br>• Global |

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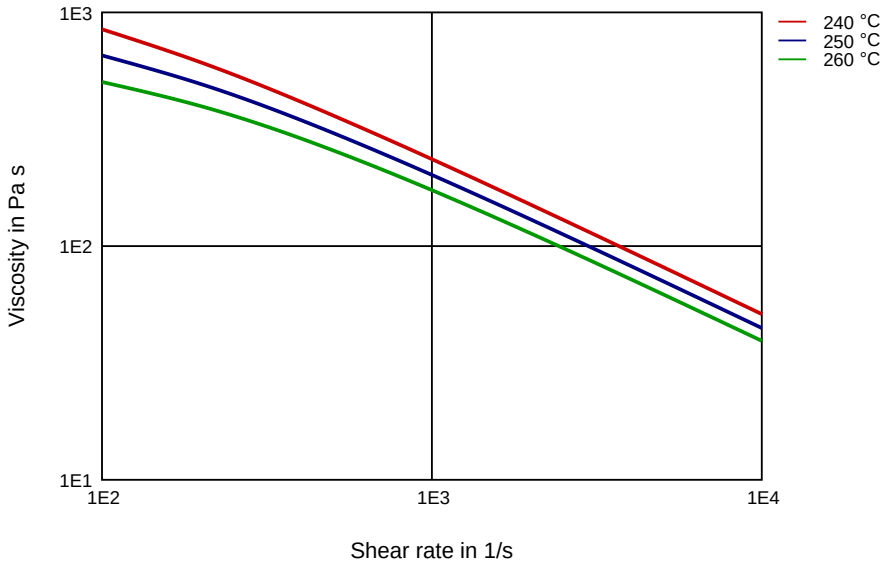
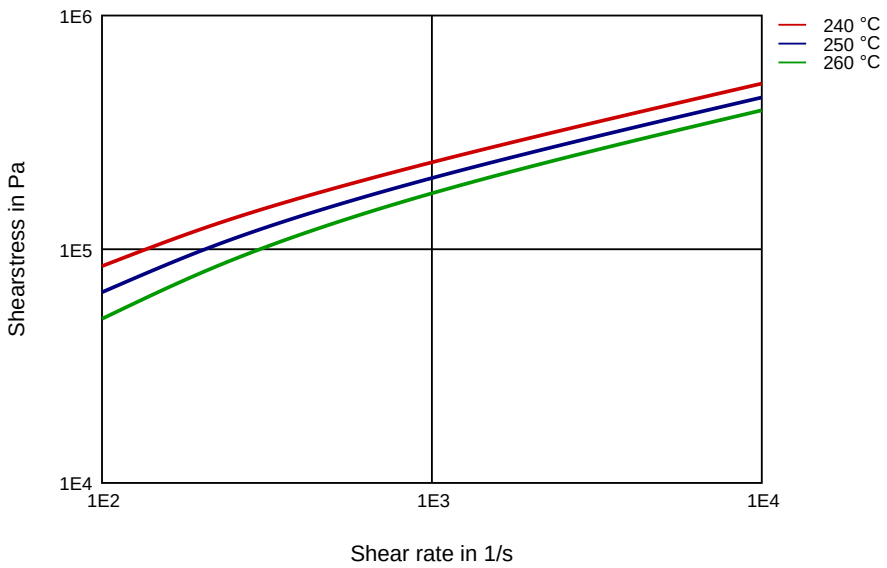
### Diagrams

#### Viscosity-shear rate




#### Shearstress-shear rate



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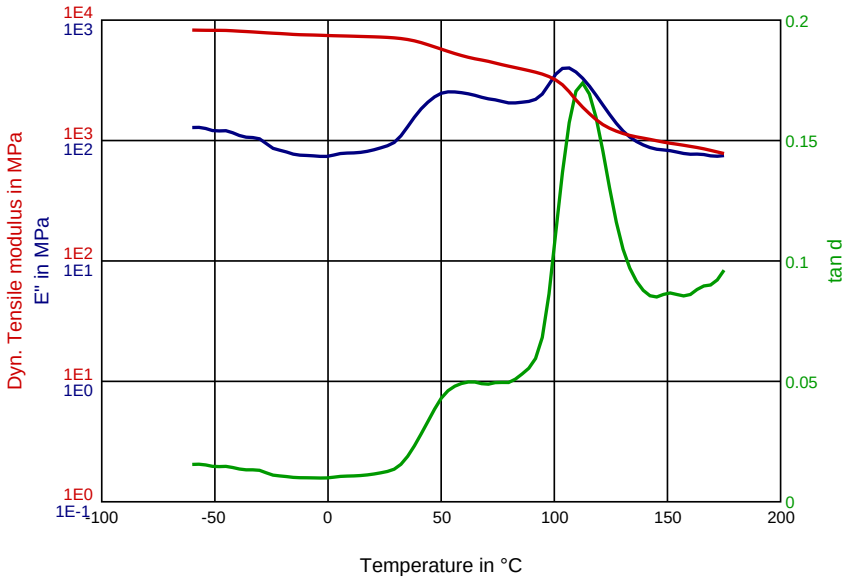
Dynamic Tensile modulus-temperature



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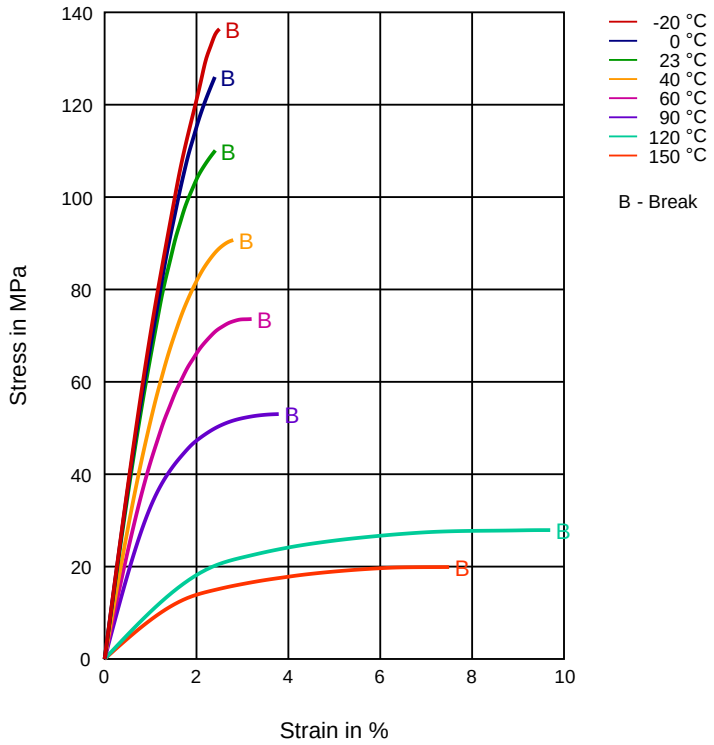
## THERMOPLASTIC POLYESTER RESIN

Stress-strain



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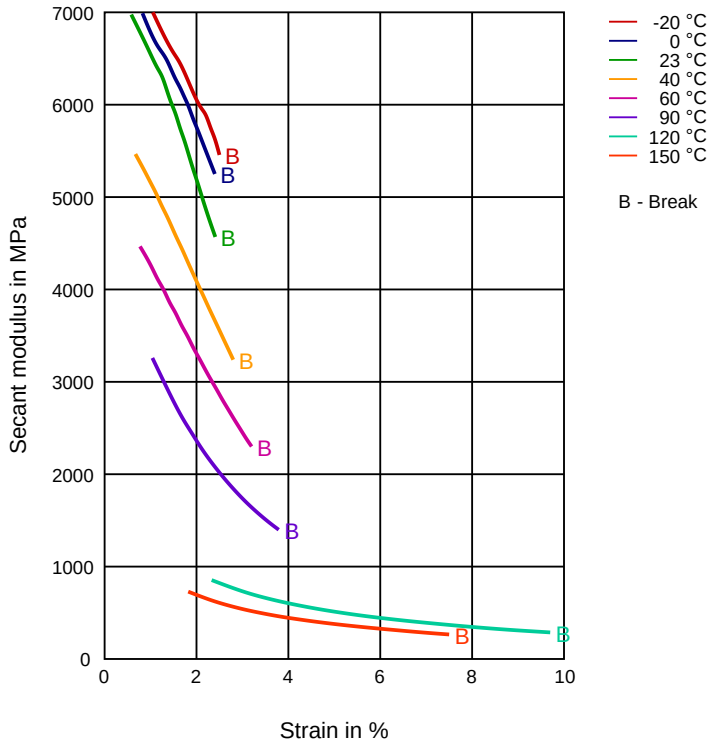
Secant modulus-strain



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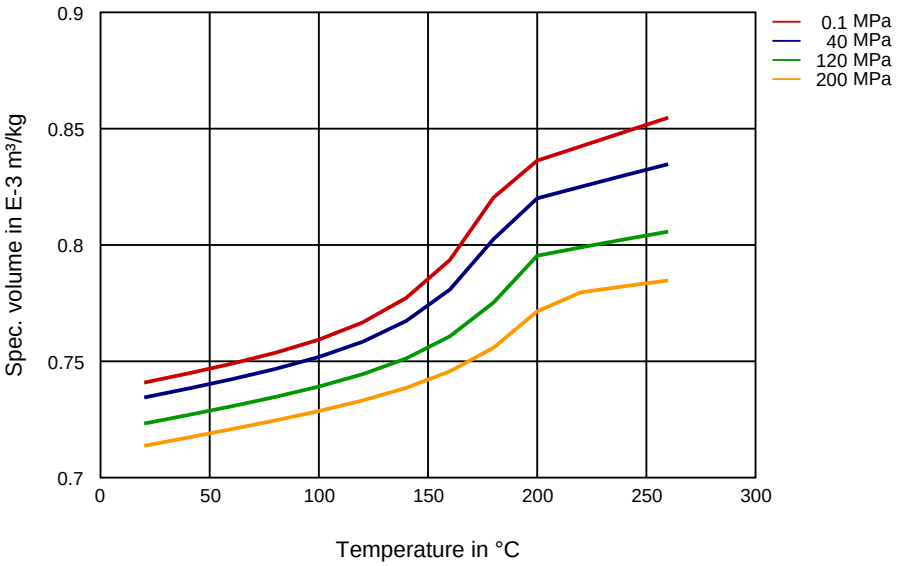
Specific volume-temperature (pvT)



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### Chemical Media Resistance

#### Acids

- ✓ Acetic Acid (5% by mass) (23°C)
- ✓ Citric Acid solution (10% by mass) (23°C)
- ✓ Lactic Acid (10% by mass) (23°C)
- ✗ Hydrochloric Acid (36% by mass) (23°C)
- ✗ Nitric Acid (40% by mass) (23°C)
- ✗ Sulfuric Acid (38% by mass) (23°C)
- ✗ Sulfuric Acid (5% by mass) (23°C)
- ✗ Chromic Acid solution (40% by mass) (23°C)

#### Bases

- ✗ Sodium Hydroxide solution (35% by mass) (23°C)
- ✓ Sodium Hydroxide solution (1% by mass) (23°C)
- ✓ Ammonium Hydroxide solution (10% by mass) (23°C)

#### Alcohols

- ✓ Isopropyl alcohol (23°C)
- ✓ Methanol (23°C)
- ✓ Ethanol (23°C)

#### Hydrocarbons

- ✓ n-Hexane (23°C)
- ✓ Toluene (23°C)
- ✓ iso-Octane (23°C)

#### Ketones

- ✓ Acetone (23°C)

#### Ethers

- ✓ Diethyl ether (23°C)

#### Mineral oils

- ✓ SAE 10W40 multigrade motor oil (23°C)
- ✗ SAE 10W40 multigrade motor oil (130°C)
- ✗ SAE 80/90 hypoid-gear oil (130°C)
- ✓ Insulating Oil (23°C)

#### Standard Fuels

- ✗ ISO 1817 Liquid 1 - E5 (60°C)
- ✗ ISO 1817 Liquid 2 - M15E4 (60°C)
- ✗ ISO 1817 Liquid 3 - M3E7 (60°C)
- ✗ ISO 1817 Liquid 4 - M15 (60°C)
- ✓ Standard fuel without alcohol (pref. ISO 1817 Liquid C) (23°C)
- ✓ Standard fuel with alcohol (pref. ISO 1817 Liquid 4) (23°C)

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| | |
|---|---|
| ✓ | Diesel fuel (pref. ISO 1817 Liquid F) (23°C) |
| ✓ | Diesel fuel (pref. ISO 1817 Liquid F) (90°C) |
| ✗ | Diesel fuel (pref. ISO 1817 Liquid F) (>90°C) |

**Salt solutions**

| | |
|---|---|
| ✓ | Sodium Chloride solution (10% by mass) (23°C) |
| ✓ | Sodium Hypochlorite solution (10% by mass) (23°C) |
| ✓ | Sodium Carbonate solution (20% by mass) (23°C) |
| ✓ | Sodium Carbonate solution (2% by mass) (23°C) |
| ✓ | Zinc Chloride solution (50% by mass) (23°C) |

**Other**

| | |
|---|---|
| ✓ | Ethyl Acetate (23°C) |
| ✗ | Hydrogen peroxide (23°C) |
| ✗ | DOT No. 4 Brake fluid (130°C) |
| ✗ | Ethylene Glycol (50% by mass) in water (108°C) |
| ✓ | 1% nonylphenoxy-polyethyleneoxy ethanol in water (23°C) |
| ✓ | 50% Oleic acid + 50% Olive Oil (23°C) |
| ✓ | Water (23°C) |
| ✗ | Water (90°C) |
| ✓ | Phenol solution (5% by mass) (23°C) |

**Symbols used:**

✓ possibly resistant

Defined as: Supplier has sufficient indication that contact with chemical can be potentially accepted under the intended use conditions and expected service life. Criteria for assessment have to be indicated (e.g. surface aspect, volume change, property change).

✗ not recommended - see explanation

Defined as: Not recommended for general use. However, short-term exposure under certain restricted conditions could be acceptable (e.g. fast cleaning with thorough rinsing, spills, wiping, vapor exposure).

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc. ISO Mechanical properties measured at 160 mil (Hytrel® measured at 80 mil), IEC Electrical properties measured at 80 mil, all ASTM properties measured at 120 mil, and test temperatures are 73°F unless otherwise stated.

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