

DuPont™ Zytel® 158 NC010

NYLON RESIN

Product Information

DuPont™ Zytel® LCPA long chain polyamide resins provide an innovative and growing portfolio of flexible polymers with excellent thermal, chemical, and hydrolysis resistance. The diverse selection of Zytel® LCPA grades is targeted for a range of performance characteristics, balancing temperature resistance, flexibility and low permeation.

Zytel® 158 NC010 is an intermediate viscosity polyamide 612 resin.

| General information | Value | Unit | Test Standard |
|---|------------------------|---------------------|---------------------|
| Resin Identification | PA612 | - | ISO 1043 |
| Part Marking Code | PA612 | - | ISO 11469 |
| Rheological properties | dry / cond | Unit | Test Standard |
| Viscosity number | 120 ⁽¹⁾ / * | cm ³ / g | ISO 307, 1157, 1628 |
| Molding shrinkage, parallel | 1.5 / - | % | ISO 294-4, 2577 |
| Molding shrinkage, normal | 1.5 / - | % | ISO 294-4, 2577 |
| Mold Shrinkage, Flow, 3.2mm (0.125in) | 1.1 / * | % | - |
| Mold Shrinkage, Transverse, 3.2mm (0.125in) | 1.1 / * | % | - |
| 1: Sulfuric acid 96% | | | |
| Mechanical properties | dry / cond | Unit | Test Standard |
| Tensile Modulus | 2400 / 1500 | MPa | ISO 527-1/-2 |
| Yield stress | 62 / 52 | MPa | ISO 527-1/-2 |
| Yield strain | 4.3 / 19 | % | ISO 527-1/-2 |
| Nominal strain at break | 35 / >50 | % | ISO 527-1/-2 |
| Charpy impact strength | | | ISO 179/1eU |
| 73°F | N / N | kJ/m ² | |
| -22°F | N / N | kJ/m ² | |
| Charpy notched impact strength | | | ISO 179/1eA |
| 73°F | 4.2 / 8 | kJ/m ² | |
| -22°F | 4.2 / 4 | kJ/m ² | |
| Izod notched impact strength | | | ISO 180/1A |
| 73°F | 4 / 6 | kJ/m ² | |
| -22°F | 5 / 4.5 | kJ/m ² | |
| Hardness, Rockwell, R-scale | 114 / 108 | - | ISO 2039-2 |
| Thermal properties | dry / cond | Unit | Test Standard |
| Melting temperature, 18°F/min | 218 / * | °C | ISO 11357-1/-3 |
| Glass transition temperature, 18°F/min | 60 / 45 | °C | ISO 11357-1/-2 |
| Temp. of deflection under load | | | ISO 75-1/-2 |
| 260 psi | 62 / * | °C | |
| 65 psi | 135 / * | °C | |
| Vicat softening temperature, 90°F/h, 11 lbf | 180 / * | °C | ISO 306 |
| Coeff. of linear therm. expansion, parallel | 120 / * | E-6/K | ISO 11359-1/-2 |
| Coeff. of linear therm. expansion, normal | 120 / * | E-6/K | ISO 11359-1/-2 |
| Thermal conductivity of melt | 0.19 | W/(m K) | - |
| Spec. heat capacity of melt | 2800 | J/(kg K) | - |
| RTI, electrical | | | UL 746B |
| 30mil | 105 / * | °C | |
| 60mil | 105 / * | °C | |
| 120mil | 105 | °C | |
| RTI, impact | | | UL 746B |
| 30mil | 65 | °C | |
| 60mil | 65 / * | °C | |
| 120mil | 65 | °C | |

To find out more, visit [DuPont Performance Polymers](#) or contact nearest DuPont location.

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| | | | |
|--------------------------------------|-------------------|-------------------|----------------------|
| RTI, strength | | | UL 746B |
| 30mil | 65 | °C | |
| 60mil | 65 / * | °C | |
| 120mil | 65 | °C | |
| Flammability | dry / cond | 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 | 0.86 / * | mm | IEC 60695-11-10 |
| UL recognition | yes / * | - | UL 94 |
| Oxygen index | 25 / * | % | ISO 4589-1/-2 |
| Flammability, 3.0mm | HB / * | - | IEC 60695-11-10 |
| FMVSS Class | SE | - | ISO 3795 (FMVSS 302) |
| Electrical properties | dry / cond | Unit | Test Standard |
| Relative permittivity | | | IEC 60250 |
| 100Hz | 3.6 / 6 | - | |
| 1MHz | 3.2 / 4 | - | |
| Dissipation factor | | | IEC 60250 |
| 100Hz | 140 / 1500 | E-4 | |
| 1MHz | 165 / 1000 | E-4 | |
| Volume resistivity | >1E13 / 1E11 | Ohm*m | IEC 60093 |
| Surface resistivity | * / 1E12 | Ohm | IEC 60093 |
| Electric strength | 36 / 36 | kV/mm | IEC 60243-1 |
| Other properties | dry / cond | Unit | Test Standard |
| Humidity absorption, 80mil | 1.3 / * | % | Sim. to ISO 62 |
| Water absorption, 80mil | 3 / * | % | Sim. to ISO 62 |
| Density | 1060 / - | kg/m ³ | ISO 1183 |
| Density of melt | 900 | kg/m ³ | - |
| Film Properties | dry / cond | Unit | Test Standard |
| Strain at yield, parallel | 4.3 / * | % | ISO 527-3 |
| Injection | Value | Unit | Test Standard |
| Drying Recommended | yes | - | - |
| Drying Temperature | 80 | °C | - |
| Drying Time, Dehumidified Dryer | 2 - 4 | h | - |
| Processing Moisture Content | ≤0.15 | % | - |
| Min. melt temperature | 230 | °C | - |
| Max. melt temperature | 290 | °C | - |
| Min. mold temperature | 50 | °C | - |
| Max. mold temperature | 90 | °C | - |
| Extrusion | Value | Unit | Test Standard |
| Drying Temperature | 75 - 80 | °C | - |
| Drying Time, Dehumidified Dryer | 3 - 4 | h | - |
| Processing Moisture Content | ≤0.06 | % | - |
| Melt Temperature Optimum | 240 | °C | - |
| Melt Temperature Range | 235 - 250 | °C | - |

Characteristics

| | | | |
|-----------------------|-----------------------------|---|--------------------------------|
| Processing | • Injection Molding | • Other Extrusion | • Coating |
| Delivery form | • Pellets | | |
| Regional Availability | • North America • Europe | • Asia Pacific • South and Central America | • Near East/Africa • Global |

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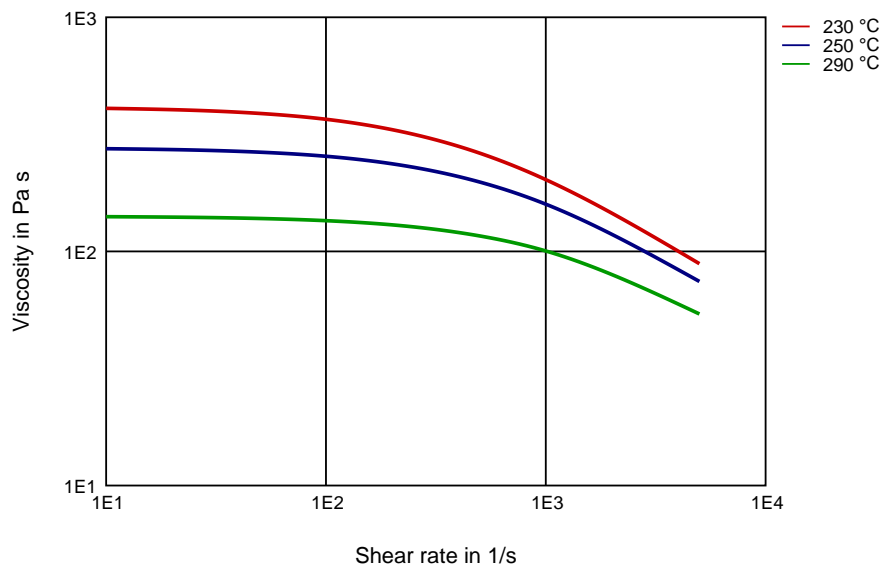
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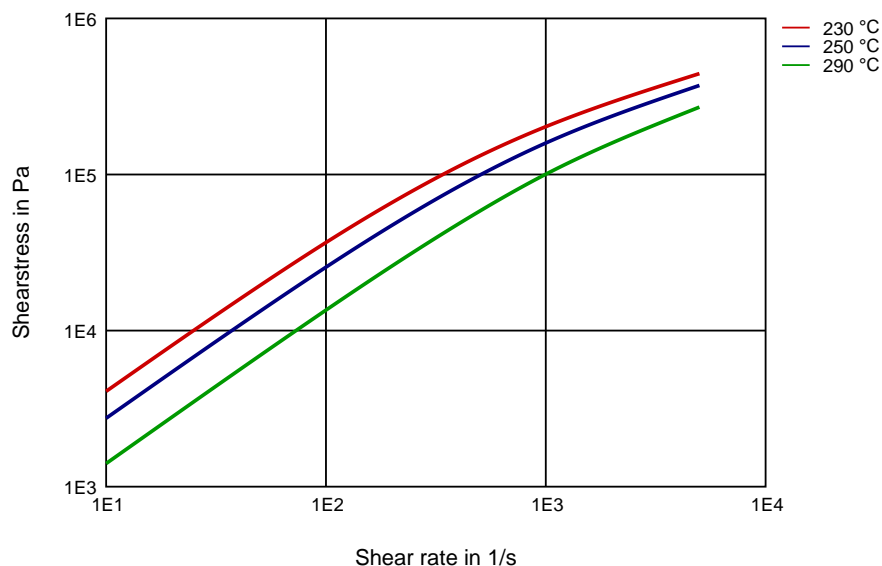
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Diagrams

Viscosity-shear rate



Shearstress-shear rate



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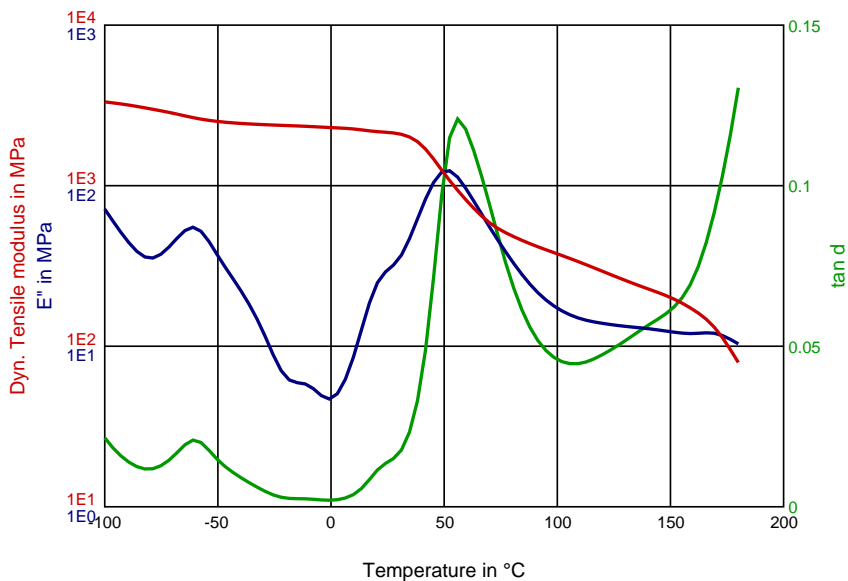
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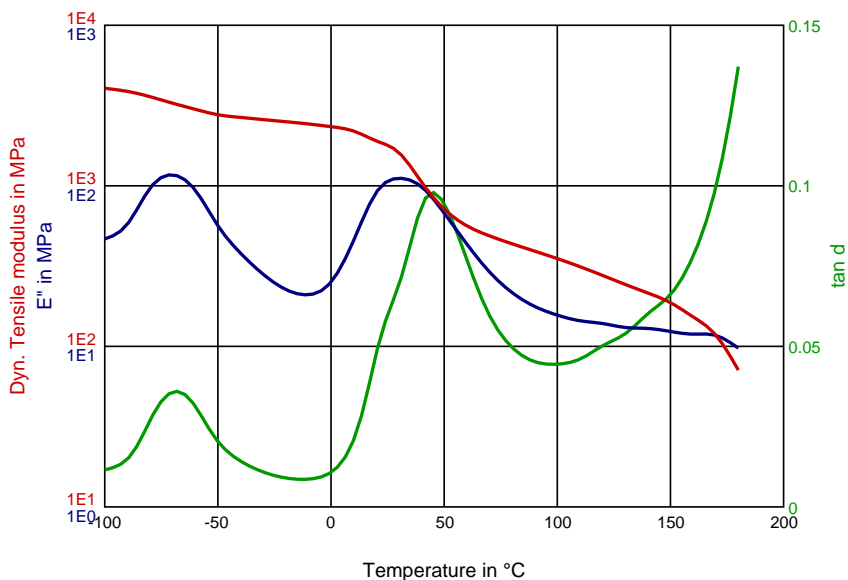
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Dynamic Tensile modulus-temperature (dry)



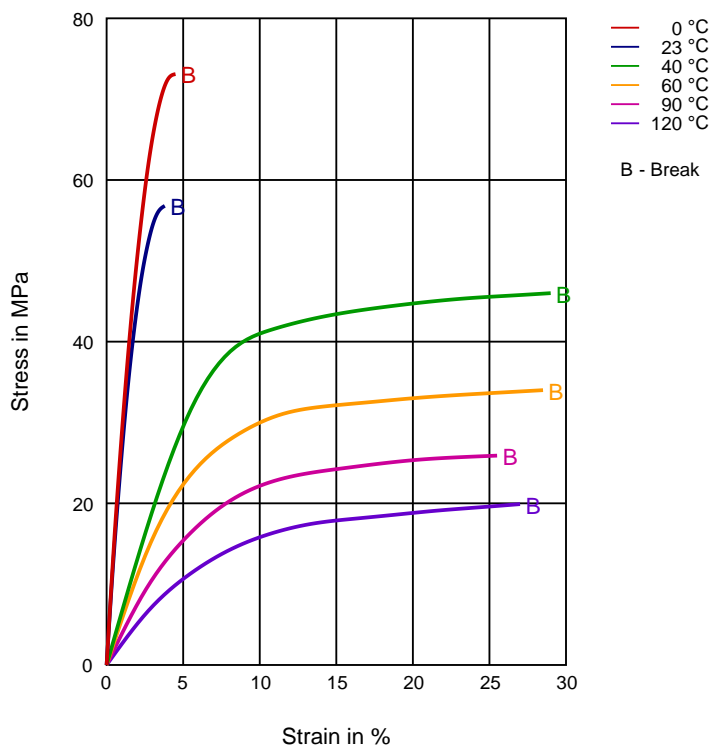
Dynamic Tensile modulus-temperature (cond.)



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Stress-strain (dry)



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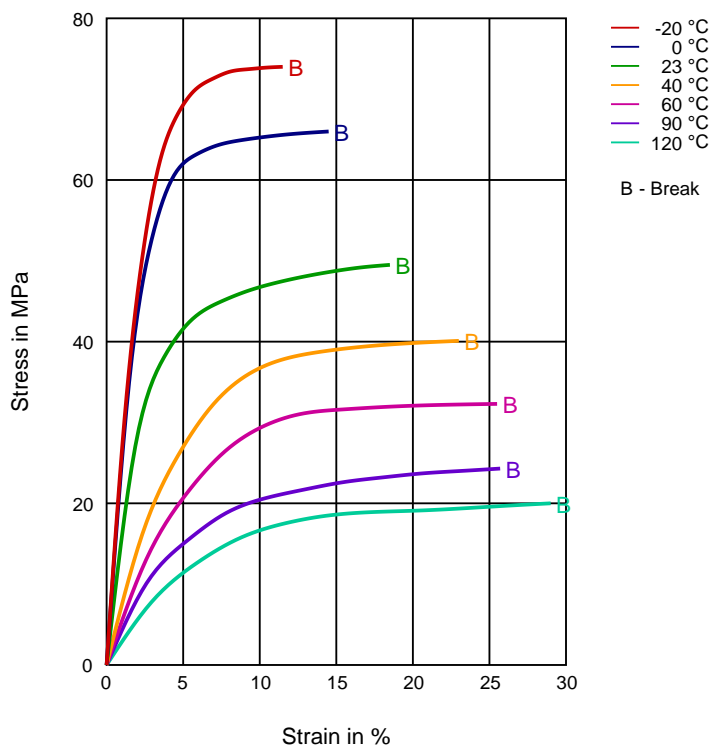
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Stress-strain (cond.)



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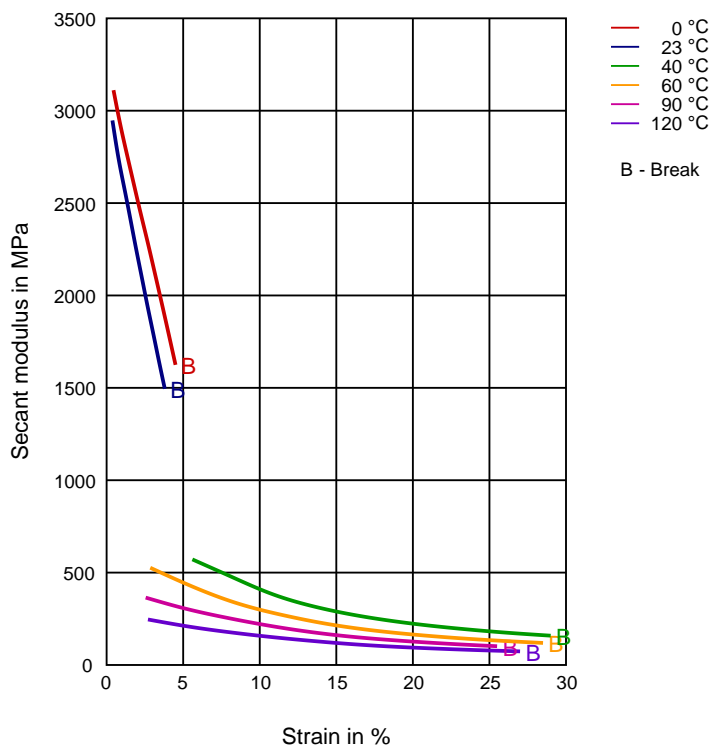
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Secant modulus-strain (dry)



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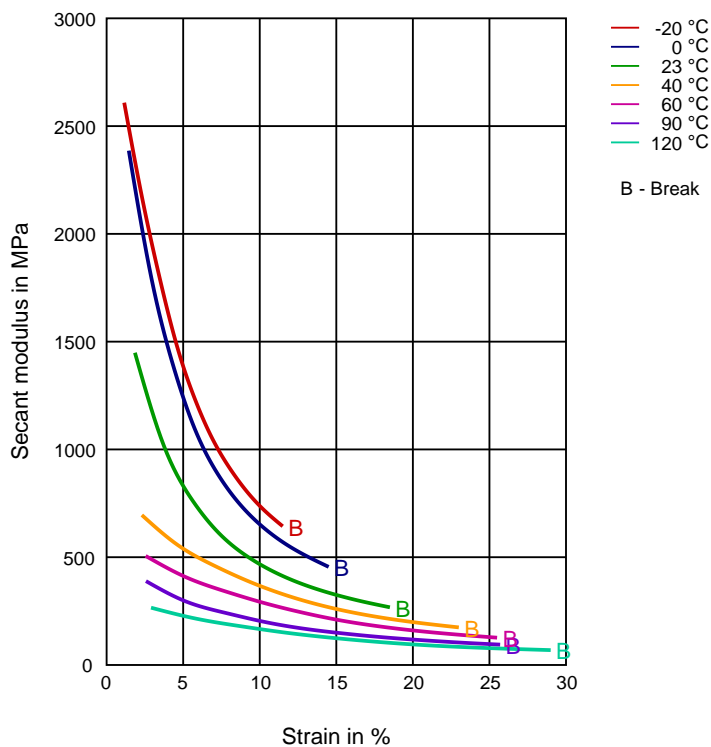
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Secant modulus-strain (cond.)



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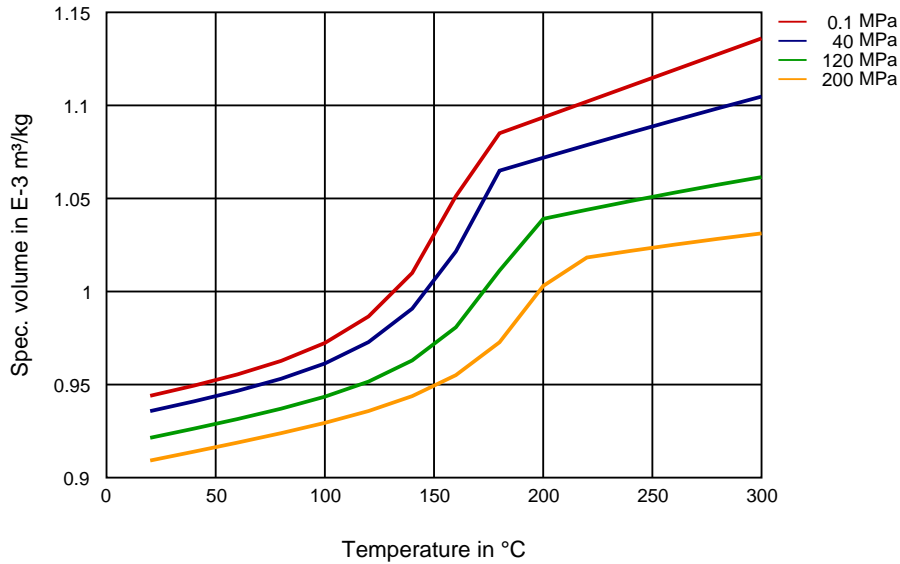
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Specific volume-temperature (pvT)



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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