# DuPont™ Delrin® 911DP NC010

## ACETAL RESIN

### Product Information

Common features of Delrin® acetal resins include mechanical and physical properties such as high mechanical strength and rigidity, excellent fatigue and impact resistance, as well as resistance to moisture, gasoline, lubricants, solvents, and many other neutral chemicals. Delrin® acetal resins also have excellent dimensional stability and good electrical insulating characteristics. They are naturally resilient, self-lubricating, and available in a variety of colors and speciality grades.

Delrin® acetal resin typically is used in demanding applications in the automotive, domestic appliances, sports, industrial engineering, electronics, and consumer goods industries.

**Delrin® 911DP is a low viscosity acetal homopolymer with enhanced crystallization for faster cycle times and excellent creep and fatigue resistance. It has improved thermal stability, excellent dimensional stability, low warpage and fewer voids.**

| General information | Value | Unit | Test Standard | |
|---|---|---|---|---|
| Resin Identification | POM | - | ISO 1043 | |
| Part Marking Code | POM | - | ISO 11469 | |
| **Rheological properties** | **Value** | **Unit** | **Test Standard** | |
| Melt volume-flow rate | 21 | cm³/10min | ISO 1133 | |
| Temperature | 190 | °C | ISO 1133 | |
| Load | 2.16 | kg | ISO 1133 | |
| Melt mass-flow rate | 24 | g/10min | ISO 1133 | |
| Molding shrinkage, parallel | 1.9 | % | ISO 294-4, 2577 | |
| Molding shrinkage, normal | 1.8 | % | ISO 294-4, 2577 | |
| **Mechanical properties** | **Value** | **Unit** | **Test Standard** | |
| Tensile Modulus | 3400 | MPa | ISO 527-1/-2 | |
| Yield stress | 75 | MPa | ISO 527-1/-2 | |
| Yield strain | 10 | % | ISO 527-1/-2 | |
| Nominal strain at break | 20 | % | ISO 527-1/-2 | |
| Flexural Modulus | 3300 | MPa | ISO 178 | |
| Flexural Stress at 3.5% | 90 | MPa | ISO 178 | |
| Charpy impact strength | | | ISO 179/1eU | |
| 73°F | 160 | kJ/m² | | |
| -22°F | 150 | kJ/m² | | |
| Charpy notched impact strength | | | ISO 179/1eA | |
| 73°F | 6.5 | kJ/m² | | |
| -22°F | 6 | kJ/m² | | |
| Ball indentation hardness, H 961/30 | 175 | MPa | ISO 2039-1 | DS |

DS: Derived from similar grade

| Thermal properties | Value | Unit | Test Standard |
|---|---|---|---|
| Melting temperature, 18°F/min | 178 | °C | ISO 11357-1/-3 |
| Temp. of deflection under load | | | ISO 75-1/-2 |
| 260 psi | 108 | °C | |
| 65 psi | 163 | °C | |
| Coeff. of linear therm. expansion, parallel | 100 | E-6/K | ISO 11359-1/-2 |
| Coeff. of linear therm. expansion, normal | 100 | E-6/K | ISO 11359-1/-2 |
| RTI, electrical | | | UL 746B |
| 30mil | 50 | °C | |
| 60mil | 110 | °C | |
| 120mil | 110 | °C | |
| RTI, impact | | | UL 746B |
| 30mil | 50 | °C | |
| 60mil | 85 | °C | |
| 120mil | 90 | °C | |
| RTI, strength | | | UL 746B |
| 30mil | 50 | °C | |
| 60mil | 90 | °C | |
| 120mil | 95 | °C | |



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

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| 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 | 0.8 | mm | IEC 60695-11-10 |
| UL recognition | yes | - | UL 94 |
| FMVSS Class | B | - | ISO 3795 (FMVSS 302) |
| Burning rate, Thickness 1 mm | 25 | mm/min | ISO 3795 (FMVSS 302) |
| **Other properties** | **Value** | **Unit** | **Test Standard** |
| Humidity absorption, 80mil | 0.2 | % | Sim. to ISO 62 |
| Water absorption, 80mil | 0.9 | % | Sim. to ISO 62 |
| Density | 1420 | kg/m³ | ISO 1183 |
| **VDA Properties** | **Value** | **Unit** | **Test Standard** |
| Emissions | <8 | mg/kg | VDA 275 |
| Fogging, F-value (refraction) | 97 | % | ISO 6452 |
| Fogging, G-value (condensate) | 0.1 | mg | ISO 6452 |
| **Injection** | **Value** | **Unit** | **Test Standard** |
| Drying Recommended | yes | - | - |
| Drying Temperature | 80 | °C | - |
| Drying Time, Dehumidified Dryer | 2 - 4 | h | - |
| Processing Moisture Content | ≤0.2 | % | - |
| Melt Temperature Optimum | 215 | °C | - |
| Min. melt temperature | 210 | °C | - |
| Max. melt temperature | 220 | °C | - |
| Mold Temperature Optimum | 90 | °C | - |
| Min. mold temperature | 80 | °C | - |
| Max. mold temperature | 100 | °C | - |
| Hold pressure range | 80 - 100 | MPa | - |
| Hold pressure time | 7.5 | s/mm | - |
| Annealing time, optional | 30 | min/mm | - |
| Annealing temperature | 160 | °C | - |
| **Extrusion** | **Value** | **Unit** | **Test Standard** |
| Drying Temperature | 75 - 85 | °C | - |
| Drying Time, Dehumidified Dryer | 2 - 4 | h | - |
| Processing Moisture Content | ≤0.2 | % | - |
| Melt Temperature Optimum | 200 | °C | - |
| Melt Temperature Range | 195 - 205 | °C | - |

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

## Processing Texts

### Injection molding

Drying is recommended, but not necessary for newly opened packaging stored in a dry location.

Follow the drying guidelines above in the following cases:
· If moisture is above the Processing Moisture Content recommendation,
· When a resin container is damaged,
· When the material is not properly stored in a dry place at room temperature, or



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· When packaging stays open for a significant time.



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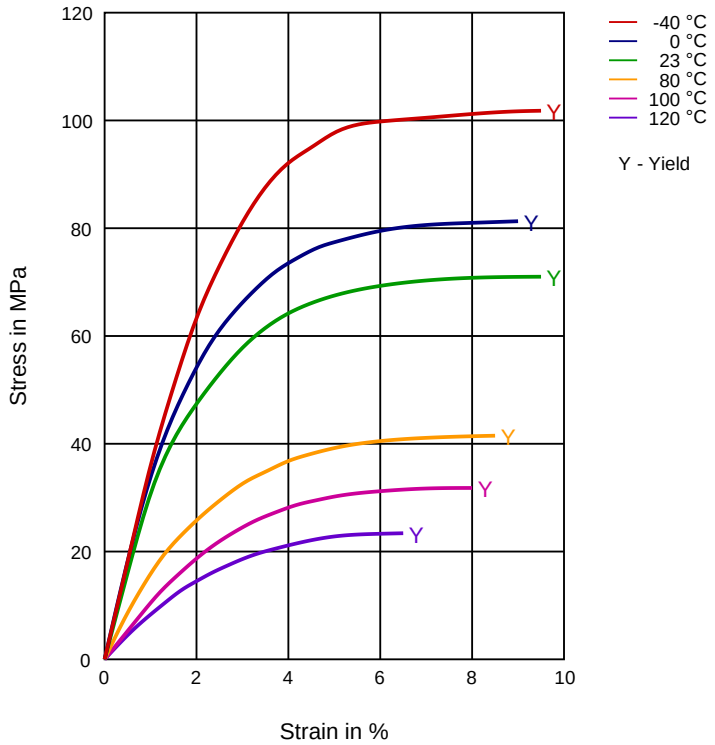
### Diagrams

#### Stress-strain




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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