

## DuPont™ Delrin®

acetal resin

### Delrin® 500CL NC010

Delrin® 500CL is a medium viscosity acetal homopolymer resin containing a chemical lubricant, designed for low wear and friction against metals.

| Property                         | Test Method    | Units             | Value      |
|----------------------------------|----------------|-------------------|------------|
| <b>Identification</b>            |                |                   |            |
| Resin Identification             | ISO 1043       |                   | POM        |
| Part Marking Code                | ISO 11469      |                   | >POM<      |
| <b>Mechanical</b>                |                |                   |            |
| Yield Stress                     | ISO 527        | MPa (kpsi)        | 67 (9.7)   |
| Yield Strain                     | ISO 527        | %                 | 15         |
| Strain at Break                  | ISO 527        | %                 |            |
| 50mm/min                         |                |                   | 45         |
| Nominal Strain at Break          | ISO 527        | %                 | 25         |
| Tensile Modulus                  | ISO 527        | MPa (kpsi)        | 3100 (450) |
| Flexural Modulus                 | ISO 178        | MPa (kpsi)        | 2900 (420) |
| Notched Charpy Impact Strength   | ISO 179/1eA    | kJ/m <sup>2</sup> |            |
| -30°C (-22°F)                    |                |                   | 8          |
| 23°C (73°F)                      |                |                   | 9          |
| Unnotched Charpy Impact Strength | ISO 179/1eU    | kJ/m <sup>2</sup> |            |
| -30°C (-22°F)                    |                |                   | 290        |
| 23°C (73°F)                      |                |                   | 350        |
| <b>Thermal</b>                   |                |                   |            |
| Deflection Temperature           | ISO 75-1/-2    | °C (°F)           |            |
| 0.45MPa                          |                |                   | 158 (315)  |
| 1.80MPa                          |                |                   | 90 (194)   |
| Melting Temperature              | ISO 11357-1/-3 | °C (°F)           |            |
| 10°C/min                         |                |                   | 178 (352)  |
| CLTE, Parallel                   | ISO 11359-1/-2 | E-4/C (E-4/F)     |            |

Contact DuPont for Material Safety Data Sheet, general guides and/or additional information about ventilation, handling, purging, drying, etc.

ISO Mechanical properties measured at 4.0mm, ISO Electrical properties measured at 2.0mm, and all ASTM properties measured at 3.2mm.

Test temperatures are 23°C unless otherwise stated.

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| Property                    | Test Method     | Units         | Value       |
|-----------------------------|-----------------|---------------|-------------|
| <b>Thermal</b>              |                 |               |             |
| -40 - 23°C (-40 - 73°F)     |                 |               | 0.92 (0.51) |
| 23 - 55°C (73 - 130°F)      |                 |               | 1.11 (0.61) |
| 55 - 100°C (130 - 212°F)    |                 |               | 1.6 (0.89)  |
| CLTE, Normal                | ISO 11359-1/-2  | E-4/C (E-4/F) |             |
| -40 - 23°C (-40 - 73°F)     |                 |               | 1.0 (0.56)  |
| 23 - 55°C (73 - 130°F)      |                 |               | 1.1 (0.63)  |
| 55 - 100°C (130 - 212°F)    |                 |               | 1.7 (0.94)  |
| Vicat Softening Temperature | ISO 306         | °C (°F)       |             |
| 50N                         |                 |               | 159 (318)   |
| <b>Rheological</b>          |                 |               |             |
| Melt Mass-Flow Rate         | ISO 1133        | g/10 min      |             |
| 190°C, 2.16kg               |                 |               | 15          |
| <b>Electrical</b>           |                 |               |             |
| Surface Resistivity         | IEC 60093       | ohm           | >1E15       |
| Relative Permittivity       | IEC 60250       |               |             |
| 1E6 Hz                      |                 |               | 3.5         |
| Dissipation Factor          | IEC 60250       | E-4           |             |
| 1E6 Hz                      |                 |               | 60          |
| CTI                         | IEC 60112       | V             | 600         |
| <b>Flammability</b>         |                 |               |             |
| Flammability Classification | IEC 60695-11-10 |               |             |
| 0.75mm                      |                 |               | HB          |
| 1.5mm                       |                 |               | HB          |
| 3.0mm                       |                 |               | HB          |
| Oxygen Index                | ISO 4589-1/-2   | %             | 22          |
| <b>Temperature Index</b>    |                 |               |             |
| RTI, Electrical             | UL 746B         | °C            |             |
| 0.75mm                      |                 |               | 50          |
| 1.5mm                       |                 |               | 100         |
| 3.0mm                       |                 |               | 100         |

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| Property                        | Test Method        | Units                                  | Value             |
|---------------------------------|--------------------|----------------------------------------|-------------------|
| Temperature Index               |                    |                                        |                   |
| RTI, Impact                     | UL 746B            | °C                                     |                   |
| 0.75mm                          |                    |                                        | 50                |
| 1.5mm                           |                    |                                        | 80                |
| 3.0mm                           | UL 746B            | °C                                     | 80                |
| RTI, Strength                   |                    |                                        |                   |
| 0.75mm                          |                    |                                        | 50                |
| 1.5mm                           |                    |                                        | 85                |
| 3.0mm                           |                    |                                        | 85                |
| Other                           |                    |                                        |                   |
| Density                         | ISO 1183           | kg/m <sup>3</sup> (g/cm <sup>3</sup> ) | 1410 (1.41)       |
| Hardness, Rockwell              | ISO 2039/2         |                                        |                   |
| Scale M                         |                    |                                        | 92                |
| Scale R                         |                    |                                        | 120               |
| Water Absorption                | ISO 62, Similar to | %                                      |                   |
| Equilibrium 50%RH               |                    |                                        | 0.25              |
| Saturation, immersed            |                    |                                        | 1                 |
| Molding Shrinkage               | ISO 294-4          | %                                      |                   |
| Normal, 2.0mm                   |                    |                                        | 1.8               |
| Parallel, 2.0mm                 |                    |                                        | 1.9               |
| Processing                      |                    |                                        |                   |
| Melt Temperature Range          |                    | °C (°F)                                | 210-220 (410-430) |
| Melt Temperature Optimum        |                    | °C (°F)                                | 215 (420)         |
| Mold Temperature Range          |                    | °C (°F)                                | 80-100 (175-210)  |
| Mold Temperature Optimum        |                    | °C (°F)                                | 90 (195)          |
| Drying Time, Dehumidified Dryer |                    | h                                      | 2-4               |
| Drying Temperature              |                    | °C (°F)                                | 80 (175)          |
| Processing Moisture Content     |                    | %                                      | <0.2              |
| Hold Pressure Range             |                    | MPa (kpsi)                             | 80-100 (12-15)    |

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