

## NOVADURAN™ 5010N6 3X

Mitsubishi Engineering-Plastics Corp - Polybutylene Terephthalate

| General Information                            |                                                       |                                                           |                 |
|------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------------|-----------------|
| Product Description                            |                                                       |                                                           |                 |
| Un-reinforced / Flame Retardant V-0, Toughness |                                                       |                                                           |                 |
| General                                        |                                                       |                                                           |                 |
| Features                                       | • Flame Retardant                                     | • Good Toughness                                          |                 |
| Uses                                           | • Automotive Applications<br>• Automotive Electronics | • Electrical/Electronic Applications<br>• General Purpose |                 |
| ASTM & ISO Properties <sup>1</sup>             |                                                       |                                                           |                 |
| Physical                                       | Nominal Value                                         | Unit                                                      | Test Method     |
| Density                                        | 1.43                                                  | g/cm³                                                     | ISO 1183        |
| Melt Volume-Flow Rate (MVR) (250°C/2.16 kg)    | 20                                                    | cm³/10min                                                 | ISO 1133        |
| Molding Shrinkage                              |                                                       |                                                           | Internal Method |
| Across Flow : 2.00 mm                          | 1.8                                                   | %                                                         |                 |
| Flow : 2.00 mm                                 | 1.9                                                   | %                                                         |                 |
| Water Absorption (Saturation, 23°C)            | 0.080                                                 | %                                                         | ISO 62          |
| Mechanical                                     | Nominal Value                                         | Unit                                                      | Test Method     |
| Tensile Modulus                                | 2800                                                  | MPa                                                       | ISO 527-1/1     |
| Tensile Stress (Yield)                         | 57.0                                                  | MPa                                                       | ISO 527-2/50    |
| Tensile Strain                                 |                                                       |                                                           | ISO 527-2/50    |
| Yield                                          | 4.3                                                   | %                                                         |                 |
| Break                                          | 20                                                    | %                                                         |                 |
| Flexural Modulus <sup>2</sup>                  | 2500                                                  | MPa                                                       | ISO 178         |
| Flexural Stress <sup>2</sup>                   | 90.0                                                  | MPa                                                       | ISO 178         |
| Impact                                         | Nominal Value                                         | Unit                                                      | Test Method     |
| Charpy Notched Impact Strength (23°C)          | 3.0                                                   | kJ/m²                                                     | ISO 179         |
| Charpy Unnotched Impact Strength (23°C)        | 120                                                   | kJ/m²                                                     | ISO 179         |
| Thermal                                        | Nominal Value                                         | Unit                                                      | Test Method     |
| Deflection Temperature Under Load              |                                                       |                                                           |                 |
| 0.45 MPa, Annealed                             | 165                                                   | °C                                                        | ISO 75-2/B      |
| 1.8 MPa, Annealed                              | 77.0                                                  | °C                                                        | ISO 75-2/A      |
| Melting Temperature                            | 224                                                   | °C                                                        | ISO 11357-3     |
| CLTE                                           |                                                       |                                                           | ISO 11359-2     |
| Flow : -30 to 35°C                             | 8.0E-5                                                | cm/cm/°C                                                  |                 |
| Flow : -30 to 120°C                            | 1.2E-4                                                | cm/cm/°C                                                  |                 |
| Flow : 35 to 120°C                             | 1.4E-4                                                | cm/cm/°C                                                  |                 |
| Transverse : -30 to 35°C                       | 8.8E-5                                                | cm/cm/°C                                                  |                 |
| Transverse : -30 to 120°C                      | 1.2E-4                                                | cm/cm/°C                                                  |                 |
| Transverse : 35 to 120°C                       | 1.5E-4                                                | cm/cm/°C                                                  |                 |
| RTI Elec (0.71 mm)                             | 140                                                   | °C                                                        | UL 746B         |



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| Thermal                          | Nominal Value | Unit    | Test Method |
|----------------------------------|---------------|---------|-------------|
| RTI Imp (0.71 mm)                | 120           | °C      | UL 746B     |
| RTI Str (0.71 mm)                | 140           | °C      | UL 746B     |
| Electrical                       | Nominal Value | Unit    | Test Method |
| Surface Resistivity              | 1.0E+15       | ohms    | IEC 60093   |
| Volume Resistivity               | 1.0E+16       | ohms·cm | IEC 60093   |
| Electric Strength                |               |         | IEC 60243-1 |
| 1.00 mm                          | 21            | kV/mm   |             |
| 2.00 mm                          | 18            | kV/mm   |             |
| Dielectric Constant (1 MHz)      | 3.20          |         | IEC 60250   |
| Dissipation Factor (1 MHz)       | 0.020         |         | IEC 60250   |
| Comparative Tracking Index (CTI) | PLC 1         |         | UL 746A     |
| Flammability                     | Nominal Value | Unit    | Test Method |
| Flame Rating                     |               |         | UL 94       |
| 0.71 mm                          | V-0           |         |             |
| 1.5 mm                           | V-0           |         |             |
| 3.0 mm                           | V-0           |         |             |

## Processing Information

| Injection                          | Nominal Value | Unit |
|------------------------------------|---------------|------|
| Drying Temperature - Hot Air Dryer | 120           | °C   |
| Drying Time - Hot Air Dryer        | 5.0 to 8.0    | hr   |
| Rear Temperature                   | 240 to 260    | °C   |
| Middle Temperature                 | 240 to 260    | °C   |
| Front Temperature                  | 240 to 260    | °C   |
| Nozzle Temperature                 | 260           | °C   |
| Mold Temperature                   | 60 to 100     | °C   |
| Injection Pressure                 | 20.0 to 150   | MPa  |
| Injection Rate                     | Moderate-Fast |      |
| Screw Speed                        | 80 to 120     | rpm  |

