

## SABIC Innovative Plastics NORYL V03550 PPE+HIPS (Asia Pacific)

Category : Polymer , Thermoplastic , Polyphenylene Ether/PPO , Polystyrene (PS)

### Material Notes:

Noryl\* V03550 is a 35% milled fibre reinforced, injection moldable grade. Designed for good dimensional stability and low warpage, this resin also uses non-chlorinated, non-brominated FR additives to achieve a V0 UL94 rating at 2.0 mm. Noryl V03550 is may be an excellent material candidate for application requiring low warpage and flame resistance.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_SABIC-Innovative-Plastics-NORYL-V03550-PPEHIPS-Asia-Pacific.php](http://www.lookpolymers.com/polymer_SABIC-Innovative-Plastics-NORYL-V03550-PPEHIPS-Asia-Pacific.php)

| Physical Properties            | Metric                                      | English                                      | Comments                                |
|--------------------------------|---------------------------------------------|----------------------------------------------|-----------------------------------------|
| Specific Gravity               | 1.35 g/cc                                   | 1.35 g/cc                                    | ASTM D792                               |
| Density                        | 1.35 g/cc                                   | 0.0488 lb/in <sup>3</sup>                    | ISO 1183                                |
| Moisture Absorption            | 0.0600 %                                    | 0.0600 %                                     | 23Â°C / 50% RH; ISO 62                  |
| Water Absorption at Saturation | 0.20 %                                      | 0.20 %                                       | ISO 62                                  |
| Linear Mold Shrinkage, Flow    | 0.0030 - 0.0050 cm/cm                       | 0.0030 - 0.0050 in/in                        | on Tensile Bar; SABIC Method            |
|                                | 0.0030 - 0.0050 cm/cm<br>@Thickness 3.20 mm | 0.0030 - 0.0050 in/in<br>@Thickness 0.126 in | SABIC Method                            |
| Melt Flow                      | 8.5 g/10 min                                | 8.5 g/10 min                                 | ASTM D1238                              |
|                                | @Load 5.00 kg,<br>Temperature 300 Â°C       | @Load 11.0 lb,<br>Temperature 572 Â°F        |                                         |
| Melt Index of Compound         | 15 g/10 min                                 | 15 g/10 min                                  | MVR [cm <sup>3</sup> /10 min]; ISO 1133 |
|                                | @Load 10.0 kg,<br>Temperature 300 Â°C       | @Load 22.0 lb,<br>Temperature 572 Â°F        |                                         |

| Mechanical Properties     | Metric   | English   | Comments                    |
|---------------------------|----------|-----------|-----------------------------|
| Hardness, H358/30         | 147 MPa  | 21300 psi | ISO 2039-1                  |
| Tensile Strength at Break | 65.0 MPa | 9430 psi  | 5 mm/min; ISO 527           |
|                           | 70.0 MPa | 10200 psi | Type I, 5 mm/min; ASTM D638 |
| Tensile Strength, Yield   | 65.0 MPa | 9430 psi  | 5 mm/min; ISO 527           |
|                           | 70.0 MPa | 10200 psi | Type I, 5 mm/min; ASTM D638 |
| Elongation at Break       | 3.0 %    | 3.0 %     | 5 mm/min; ISO 527           |
|                           | 3.5 %    | 3.5 %     | Type I, 5 mm/min; ASTM D638 |
| Elongation at Yield       | 3.0 %    | 3.0 %     | 5 mm/min; ISO 527           |

| Mechanical Properties        | Metric                 | English                | Comments                           |
|------------------------------|------------------------|------------------------|------------------------------------|
|                              |                        |                        | Type I, 5 mm/min; ASTM D638        |
| Tensile Modulus              | 4.20 GPa               | 609 ksi                | 5 mm/min; ASTM D638                |
|                              | 5.00 GPa               | 725 ksi                | 1 mm/min; ISO 527                  |
| Flexural Strength            | 105 MPa                | 15200 psi              | 2 mm/min; ISO 178                  |
| Flexural Yield Strength      | 115 MPa                | 16700 psi              | 1.3 mm/min, 50 mm span; ASTM D790  |
| Flexural Modulus             | 4.40 GPa               | 638 ksi                | 1.3 mm/min, 50 mm span; ASTM D790  |
|                              | 4.70 GPa               | 682 ksi                | 2 mm/min; ISO 178                  |
| Izod Impact, Notched         | 0.550 J/cm             | 1.03 ft-lb/in          | ASTM D256                          |
|                              | 0.500 J/cm             | 0.937 ft-lb/in         |                                    |
|                              | @Temperature -30.0 Â°C | @Temperature -22.0 Â°F | ASTM D256                          |
| Izod Impact, Unnotched (ISO) | 30.0 kJ/mÂ²            | 14.3 ft-lb/inÂ²        | 80*10*4; ISO 180/1U                |
|                              | 30.0 kJ/mÂ²            | 14.3 ft-lb/inÂ²        |                                    |
|                              | @Temperature -30.0 Â°C | @Temperature -22.0 Â°F | 80*10*4; ISO 180/1U                |
| Charpy Impact Unnotched      | 3.00 J/cmÂ²            | 14.3 ft-lb/inÂ²        | Edgew 80*10*4 sp=62mm; ISO 179/1eU |
|                              | 3.00 J/cmÂ²            | 14.3 ft-lb/inÂ²        |                                    |
|                              | @Temperature -30.0 Â°C | @Temperature -22.0 Â°F | Edgew 80*10*4 sp=62mm; ISO 179/1eU |
| Dart Drop, Total Energy      | 19.0 J                 | 14.0 ft-lb             |                                    |
|                              | @Temperature 23.0 Â°C  | @Temperature 73.4 Â°F  | ASTM D3763                         |

| Thermal Properties              | Metric                        | English                      | Comments    |
|---------------------------------|-------------------------------|------------------------------|-------------|
| CTE, linear, Parallel to Flow   | 40.0 Âµm/m-Â°C                | 22.2 Âµin/in-Â°F             |             |
|                                 | @Temperature 23.0 - 80.0 Â°C  | @Temperature 73.4 - 176 Â°F  | ISO 11359-2 |
|                                 | 48.0 Âµm/m-Â°C                | 26.7 Âµin/in-Â°F             |             |
|                                 | @Temperature -40.0 - 40.0 Â°C | @Temperature -40.0 - 104 Â°F | ASTM E 831  |
| CTE, linear, Transverse to Flow | 48.0 Âµm/m-Â°C                | 26.7 Âµin/in-Â°F             |             |
|                                 | @Temperature -40.0 - 40.0 Â°C | @Temperature -40.0 - 104 Â°F | ASTM E 831  |

| Thermal Properties                          | Metric $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$ | English $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$ | Comments                           |
|---------------------------------------------|----------------------------------------------------------|-------------------------------------------------------------|------------------------------------|
|                                             | @Temperature 23.0 - 80.0 Å°C                             | @Temperature 73.4 - 176 Å°F                                 | ISO 11359-2                        |
| Thermal Conductivity                        | 0.290 W/m-K                                              | 2.01 BTU-in/hr-ftÅ²-Å°F                                     | ISO 8302                           |
| Hot Ball Pressure Test                      | <= 150 Å°C                                               | <= 302 Å°F                                                  | IEC 60695-10-2                     |
| Deflection Temperature at 0.46 MPa (66 psi) | 150 Å°C                                                  | 302 Å°F                                                     | Edgew 120*10*4 sp=100mm; ISO 75/Be |
| Deflection Temperature at 1.8 MPa (264 psi) | 145 Å°C                                                  | 293 Å°F                                                     | Edgew 120*10*4 sp=100mm; ISO 75/Ae |
|                                             | 148 Å°C                                                  | 298 Å°F                                                     | unannealed; ASTM D648              |
|                                             | @Thickness 3.20 mm                                       | @Thickness 0.126 in                                         |                                    |
| Vicat Softening Point                       | 155 Å°C                                                  | 311 Å°F                                                     | Rate B/50; ISO 306                 |
|                                             | 160 Å°C                                                  | 320 Å°F                                                     | Rate B/120; ISO 306                |
|                                             | 161 Å°C                                                  | 322 Å°F                                                     | Rate B/50; ASTM D1525              |
|                                             | 165 Å°C                                                  | 329 Å°F                                                     | Rate A/50; ISO 306                 |
| UL RTI, Electrical                          | 50.0 Å°C                                                 | 122 Å°F                                                     | UL 746B                            |
| UL RTI, Mechanical with Impact              | 50.0 Å°C                                                 | 122 Å°F                                                     | UL 746B                            |
| UL RTI, Mechanical without Impact           | 50.0 Å°C                                                 | 122 Å°F                                                     | UL 746B                            |
| Flammability, UL94                          | V-1                                                      | V-1                                                         | UL 94                              |
|                                             | @Thickness 1.50 mm                                       | @Thickness 0.0591 in                                        |                                    |
|                                             | V-0                                                      | V-0                                                         | UL 94                              |
|                                             | @Thickness 2.00 mm                                       | @Thickness 0.0787 in                                        |                                    |
| Oxygen Index                                | 34 %                                                     | 34 %                                                        | ISO 4589                           |
| Glow Wire Test                              | 960 Å°C                                                  | 1760 Å°F                                                    | IEC 60695-2-12                     |
|                                             | @Thickness 3.20 mm                                       | @Thickness 0.126 in                                         |                                    |

| Electrical Properties | Metric                | English               | Comments       |
|-----------------------|-----------------------|-----------------------|----------------|
| Volume Resistivity    | 1.00e+15 ohm-cm       | 1.00e+15 ohm-cm       | IEC 60093      |
| Surface Resistance    | >= 1.00e+15 ohm       | >= 1.00e+15 ohm       | ROA; IEC 60093 |
| Dielectric Constant   | 3.0                   | 3.0                   | IEC 60250      |
|                       | @Frequency 1.00e+6 Hz | @Frequency 1.00e+6 Hz |                |

| Electrical Properties | Metric                    | English                   | Comments            |
|-----------------------|---------------------------|---------------------------|---------------------|
|                       | @Frequency 50.0 - 60.0 Hz | @Frequency 50.0 - 60.0 Hz | IEC 60250           |
| Dielectric Strength   | 15.0 kV/mm                | 381 kV/in                 | in oil; IEC 60243-1 |
|                       | @Thickness 3.20 mm        | @Thickness 0.126 in       |                     |
|                       | 26.0 kV/mm                | 660 kV/in                 | in oil; IEC 60243-1 |
|                       | @Thickness 1.60 mm        | @Thickness 0.0630 in      |                     |
|                       | 33.0 kV/mm                | 838 kV/in                 | in oil; IEC 60243-1 |
|                       | @Thickness 0.800 mm       | @Thickness 0.0315 in      |                     |
| Dissipation Factor    | 0.0030                    | 0.0030                    | IEC 60250           |
|                       | @Frequency 1.00e+6 Hz     | @Frequency 1.00e+6 Hz     |                     |
|                       | 0.0050                    | 0.0050                    | IEC 60250           |
|                       | @Frequency 50.0 - 60.0 Hz | @Frequency 50.0 - 60.0 Hz |                     |

| Descriptive Properties              | Value  | Comments       |
|-------------------------------------|--------|----------------|
| Ball Pressure Test, 125Â°C +/- 2Â°C | PASSES | IEC 60695-10-2 |

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