

|                     |                                         |
|---------------------|-----------------------------------------|
| PRODUCT CODE        | TISOPLÉN C 20D05 R01                    |
| PRODUCT DESCRIPTION | PPH, 20% GLASS BEAD REINFORCED, NATURAL |

| PHYSICAL | PROPERTIES        | CONDITION       | STANDARD  | UNITS             | VALUE            |
|----------|-------------------|-----------------|-----------|-------------------|------------------|
|          | DENSITY           | -               | ISO 1183  | g/cm <sup>3</sup> | <b>1.02-1.05</b> |
|          | MOLDING SHRINKAGE | PARALLEL/NORMAL | ISO 294-4 | %                 | -                |
|          | MOISTURE CONTENT  | -               | ISO 15512 | %                 | -                |

| MECHANICAL | PROPERTIES                      | CONDITION | STANDARD  | UNITS             | VALUE            |
|------------|---------------------------------|-----------|-----------|-------------------|------------------|
|            | YIELD STRENGTH                  | +23°C     | ISO 527-2 | MPa               | -                |
|            | TENSILE STRESS AT BREAK         | +23°C     | ISO 527-2 | MPa               | <b>20-30</b>     |
|            | TENSILE STRAIN AT BREAK         | +23°C     | ISO 527-2 | %                 | -                |
|            | TENSILE MODULUS                 | +23°C     | ISO 527-2 | MPa               | <b>1500-2000</b> |
|            | IZOD IMPACT STRENGTH, NOTCHED   | +23°C     | ISO 180/A | kJ/m <sup>2</sup> | <b>2-4</b>       |
|            | IZOD IMPACT STRENGTH, NOTCHED   | -30°C     | ISO 180/A | kJ/m <sup>2</sup> | -                |
|            | IZOD IMPACT STRENGTH, UNNOTCHED | +23°C     | ISO 180/U | kJ/m <sup>2</sup> | -                |
|            | IZOD IMPACT STRENGTH, UNNOTCHED | -30°C     | ISO 180/U | kJ/m <sup>2</sup> | -                |

| THERMAL | PROPERTIES                  | CONDITION | STANDARD       | UNITS | VALUE          |
|---------|-----------------------------|-----------|----------------|-------|----------------|
|         | VICAT SOFTENING TEMPERATURE | 50 N      | ISO 306        | °C    | -              |
|         | HEAT DEFLECTION TEMPERATURE | 0,45 MPa  | ISO 75         | °C    | -              |
|         | HEAT DEFLECTION TEMPERATURE | 1,80 MPa  | ISO 75         | °C    | -              |
|         | MELTING TEMPERATURE         | 10 K/min  | ISO 11357      | °C    | <b>165-170</b> |
|         | BALL PRESSURE TEST          | 120 °C    | ISO 60695-10-2 | -     | -              |

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| ELECTRICAL & FLAMMABILITY | PROPERTIES                         | CONDITION  | STANDARD  | UNITS  | VALUE |
|---------------------------|------------------------------------|------------|-----------|--------|-------|
|                           | FLAME RATING                       | 0,75 mm    | UL 94     | -      | HB    |
|                           | FLAME RATING                       | 1,6 mm     | UL 94     | -      | HB    |
|                           | GLOW WIRE FLAMMABILITY INDEX       | 2 mm       | IEC 60695 | °C     | -     |
|                           | GLOW WIRE IGNITABILITY TEMPERATURE | 2 mm       | IEC 60695 | °C     | -     |
|                           | COMPARATIVE TRACKING INDEX         | Solution A | ISO 60112 | Volt   | -     |
|                           | VOLUME RESISTIVITY                 | -          | IEC 60093 | Ohm.cm | 1E+15 |
|                           | SURFACE RESISTIVITY                | -          | IEC 60093 | Ohm    | 1E+15 |

| INJECTION PROCESS | PROPERTIES                | CONDITION | VALUE   |
|-------------------|---------------------------|-----------|---------|
|                   | PREDRYING TEMPERATURE     | °C        | 80      |
|                   | PREDRYING TIME            | hours     | 1-2     |
|                   | MELTING TEMPERATURE       | °C        | 210-230 |
|                   | NOZZLE TEMPERATURE        | °C        | 230     |
|                   | PRE- 3 REGION TEMPERATURE | °C        | 200-240 |
|                   | MID-2 REGION TEMPERATURE  | °C        | 200-240 |
|                   | AFT-1 REGION TEMPERATURE  | °C        | 150-180 |
|                   | MOLD TEMPERATURE          | °C        | 40-70   |
|                   | HOLD PRESSURE             | MPa       | 50-100  |