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|----------------------------|---|
| <b>PRODUCT CODE</b>        | <b>TISOPLLEN D 30D02 R01</b>            |
| <b>PRODUCT DESCRIPTION</b> | <b>PPC, 30% CALCITE FILLED, NATURAL</b> |

| PHYSICAL | PROPERTIES        | CONDITION | STANDARD  | UNITS             | VALUE            |
|----------|-------------------|-----------|-----------|-------------------|------------------|
|          | DENSITY           | -         | ISO 1183  | g/cm <sup>3</sup> | <b>1.13-1.18</b> |
|          | MOLDING SHRINKAGE | PARALLEL  | 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>15-25</b>     |
|            | TENSILE STRAIN AT BREAK         | +23°C     | ISO 527-2 | %                 | <b>&gt;20</b>    |
|            | TENSILE MODULUS                 | +23°C     | ISO 527-2 | MPa               | <b>1000-2000</b> |
|            | IZOD IMPACT STRENGTH, NOTCHED   | +23°C     | ISO 180/A | kJ/m <sup>2</sup> | <b>&gt;5</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> | <b>NB</b>        |
|            | IZOD IMPACT STRENGTH, UNNOTCHED | -30°C     | ISO 180/U | kJ/m <sup>2</sup> | <b>NB</b>        |

| 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    | <b>55</b>      |
|                    | MELTING TEMPERATURE         | 10 K/min       | ISO 11357 | °C    | <b>160-165</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     | -      | <b>HB</b>    |
|                           | FLAME RATING                       | 1,6 mm     | UL 94     | -      | <b>HB</b>    |
|                           | 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 | <b>1E+15</b> |
|                           | SURFACE RESISTIVITY                | -          | IEC 60093 | Ohm    | <b>1E+15</b> |

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

Data are based on dry conditions

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