## **Product Information**

# INVISTA U4800 PA66 Resin

# **Product Description**

INVISTA U4800 is a general purpose, natural PA66 resin suitable for compounding, injection molding, and extrusion applications where ease of processing, excellent color, and physical property retention are desired.

| RV in formic acid, nominal48-ASTM D789VN at 0.5% in sulfuric acid, nominal150mL/gISO 307RV at 1% in sulfuric acid, nominal2.7Density1.14g/cm³ISO 1183Mold shrinkage, 2.0 mm, parallel1.5%ISO 294.4Mold shrinkage, 2.0 mm, transverse1.8%ISO 294.4Vater absorption - 24 hours1.8%ISO 62Vater absorption - 24 hours1.8%ISO 62Vater absorption - equilibrium @ 50% RH2.6%ISO 527Elongation at yield4.2%ISO 527Elongation at yield4.2%ISO 527Fensile strength at yield3100MPaISO 527Fensile modulus3100MPaISO 178Fexural modulus2900MPaISO 178Fexural strength94MPaISO 179Notched Charpy at 23°CNBK/m²ISO 179Notched Charpy at 23°CNBK/m²ISO 179Notched Izod at 23°CNBK/m²ISO 179Notched Izod at 23°CNBK/m²ISO 180Notched Izod at 23°CNBK/m²ISO 1357Notched Izod at 23°CNBK/m²ISO 1357NDT at 0.45 MPa200°CISO 1357HDT at 0.45 MPa200°CISO 1357HDT at 0.45 MPa200°CISO 75HDT at 1.80 MPa72°CISO 75HDT at 1.80 MPa72°C   |           | Properties (dry)                        | Value | Units                 | Method    |
|--|-----------|---|-------|-----------------------|-----------|
| RV at 1% in sulfuric acid, nominal2.7-Density1.14g/cm3ISO 1183Mold shrinkage, 2.0 mm, parallel1.5%ISO 294.4Mold shrinkage, 2.0 mm, transverse1.8%ISO 294.4Water absorption - 24 hours1.8%ISO 62Water absorption - equilibrium @ 50% RH2.6%ISO 527Elongation at yield82MPaISO 527Elongation at yield4.2%ISO 527Elongation at break40%ISO 527Flexural modulus3100MPaISO 527Flexural modulus2900MPaISO 178Flexural strength94MPaISO 178Notched Charpy at 23°CNBKJ/m2ISO 179Unnotched Charpy at -30°CNBKJ/m2ISO 179Notched Izod at 23°CNBKJ/m2ISO 179Notched Izod at 23°CNBKJ/m2ISO 179IDT at 0.45 MPa200°CISO 1357HDT at 1.80 MPa72°CISO 1357   | Viscosity | RV in formic acid, nominal              | 48    | _                     | ASTM D789 |
| Provide<br>Mold shrinkage, 2.0 mm, parallel1.5%150 294-4Mold shrinkage, 2.0 mm, transverse1.8%150 294-4Water absorption - 24 hours1.8%150 62Water absorption - equilibrium @ 50% RH2.6%150 62Water absorption - equilibrium @ 50% RH2.6%150 527Elongation at yield4.2%150 527Elongation at break40%150 527Flexural modulus3100MPa150 527Flexural modulus2900MPa150 178Flexural strength94MPa150 178Notched Charpy at 23°C5.4kJ/m²150 179Unnotched Charpy at -30°CNBkJ/m²150 179Unnotched Charpy at -30°CNBkJ/m²150 180Melting temperature, 10°C/min261°C150 11357HDT at 0.45 MPa200°C150 75HDT at 1.80 MPa72°C150 75   |           | VN at 0.5% in sulfuric acid, nominal    | 150   | mL/g                  | ISO 307   |
| Provide<br>Mold shrinkage, 2.0 mm, parallel1.5%150 294-4Mold shrinkage, 2.0 mm, transverse1.8%150 294-4Water absorption - 24 hours1.8%150 62Water absorption - equilibrium @ 50% RH2.6%150 62Water absorption - equilibrium @ 50% RH2.6%150 527Elongation at yield4.2%150 527Elongation at break40%150 527Flexural modulus3100MPa150 527Flexural modulus2900MPa150 178Flexural strength94MPa150 178Notched Charpy at 23°C5.4kJ/m²150 179Unnotched Charpy at -30°CNBkJ/m²150 179Unnotched Charpy at -30°CNBkJ/m²150 180Melting temperature, 10°C/min261°C150 11357HDT at 0.45 MPa200°C150 75HDT at 1.80 MPa72°C150 75   |           | RV at 1% in sulfuric acid, nominal      | 2.7   | -                     | _         |
| Mold shrinkage, 2.0 mm, transverse1.8%ISO 294-4Water absorption - 24 hours1.8%ISO 62Water absorption - equilibrium @ 50% RH2.6%ISO 527Tensile strength at yield82MPaISO 527Elongation at yield4.2%ISO 527Elongation at break40%ISO 527Tensile modulus3100MPaISO 527Flexural modulus2900MPaISO 178Flexural strength94MPaISO 178Notched Charpy at 23°C5.4kJ/m²ISO 179Unnotched Charpy at -30°C4.2kJ/m²ISO 179Notched Izod at 23°CNBkJ/m²ISO 180Melting temperature, 10°C/min261°CISO 11357HDT at 0.45 MPa200°CISO 75HDT at 1.80 MPa72°CISO 75  |           | Density                                 | 1.14  | g/cm <sup>3</sup>     | ISO 1183  |
| Vater absorption - equilibrium @ 50% RH2.6%ISO 62Tensile strength at yield82MPaISO 527Elongation at yield4.2%ISO 527Elongation at break40%ISO 527Tensile modulus3100MPaISO 527Flexural modulus2900MPaISO 178Flexural strength94MPaISO 178Notched Charpy at 23°C5.4KJ/m2ISO 179Notched Charpy at -30°C4.2KJ/m2ISO 179Unnotched Charpy at -30°CNBKJ/m2ISO 179Notched Izod at 23°CNBKJ/m2ISO 179Notched Izod at 23°C4.7KJ/m2ISO 179Notched Izod at 23°C4.7KJ/m2ISO 1357Motting temperature, 10°C/min261°CISO 11357HDT at 0.45 MPa200°CISO 75HDT at 1.80 MPa72°CISO 75   |           | Mold shrinkage, 2.0 mm, parallel        | 1.5   | %                     | ISO 294-4 |
| Vater absorption - equilibrium @ 50% RH2.6%ISO 62Tensile strength at yield82MPaISO 527Elongation at yield4.2%ISO 527Elongation at break40%ISO 527Tensile modulus3100MPaISO 527Flexural modulus2900MPaISO 178Flexural strength94MPaISO 178Notched Charpy at 23°C5.4KJ/m2ISO 179Notched Charpy at -30°C4.2KJ/m2ISO 179Unnotched Charpy at -30°CNBKJ/m2ISO 179Notched Izod at 23°CNBKJ/m2ISO 179Notched Izod at 23°C4.7KJ/m2ISO 179Notched Izod at 23°C4.7KJ/m2ISO 1357Motting temperature, 10°C/min261°CISO 11357HDT at 0.45 MPa200°CISO 75HDT at 1.80 MPa72°CISO 75   | sical     | Mold shrinkage, 2.0 mm, transverse      | 1.8   | %                     | ISO 294-4 |
| Tensile strength at yield82MPaISO 527Elongation at yield4.2%ISO 527Elongation at break40%ISO 527Tensile modulus3100MPaISO 527Flexural modulus2900MPaISO 178Flexural strength94MPaISO 178Notched Charpy at 23°C5.4kJ/m²ISO 179Unnotched Charpy at -30°C4.2kJ/m²ISO 179Unnotched Charpy at -30°CNBkJ/m²ISO 179IDT at 0.45 MPa200°CISO 11357HDT at 1.80 MPa72°CISO 75  | Phys      | Water absorption - 24 hours             | 1.8   | %                     | ISO 62    |
| Floration at yield4.2%ISO 527Elongation at break40%ISO 527Tensile modulus3100MPaISO 527Flexural modulus2900MPaISO 178Flexural strength94MPaISO 178Notched Charpy at 23°C5.4kJ/m²ISO 179Unnotched Charpy at 23°CNBkJ/m²ISO 179Unnotched Charpy at 30°CNBkJ/m²ISO 179Unnotched Izod at 23°C0CISO 1357HDT at 0.45 MPa200°CISO 75HDT at 1.80 MPa72°CISO 75   |           | Water absorption - equilibrium @ 50% RH | 2.6   | %                     | ISO 62    |
| Floringation at break 40 % ISO 527   Tensile modulus 3100 MPa ISO 527   Flexural modulus 2900 MPa ISO 178   Flexural strength 94 MPa ISO 178   Notched Charpy at 23°C 5.4 kJ/m² ISO 179   Notched Charpy at -30°C 4.2 kJ/m² ISO 179   Unnotched Charpy at -30°C NB kJ/m² ISO 179   Unnotched Charpy at -30°C NB kJ/m² ISO 179   Vinotched Izod at 23°C 4.7 kJ/m² ISO 180   Melting temperature, 10°C/min 261 °C ISO 11357   HDT at 1.80 MPa 72 °C ISO 75   |           | Tensile strength at yield               | 82    | MPa                   | ISO 527   |
| Tensile modulus3100MPaISO 527Flexural modulus2900MPaISO 178Flexural strength94MPaISO 178Notched Charpy at 23°C5.4kJ/m²ISO 179Notched Charpy at -30°C4.2kJ/m²ISO 179Unnotched Charpy at 23°CNBkJ/m²ISO 179Unnotched Charpy at 23°CNBkJ/m²ISO 179Unnotched Charpy at 23°CNBkJ/m²ISO 179Unnotched Charpy at 23°CNBkJ/m²ISO 179Unnotched Charpy at -30°CNBkJ/m²ISO 179IDT at 1.80 MPa200°CISO 11357HDT at 1.80 MPa72°CISO 75   |           | Elongation at yield                     | 4.2   | %                     | ISO 527   |
| Flexural modulus2900MPaISO 178Flexural strength94MPaISO 178Notched Charpy at 23°C5.4KJ/m²ISO 179Notched Charpy at -30°C4.2KJ/m²ISO 179Unnotched Charpy at 23°CNBKJ/m²ISO 179Unnotched Charpy at 23°CNBKJ/m²ISO 179Notched Izod at 23°CNBKJ/m²ISO 179Notched Izod at 23°C4.7KJ/m²ISO 180Melting temperature, 10°C/min261°CISO 11357HDT at 0.45 MPa200°CISO 75HDT at 1.80 MPa72°CISO 75  |           | Elongation at break                     | 40    | %                     | ISO 527   |
| Notched Charpy at -30°C4.2kJ/m²ISO 179Unnotched Charpy at 23°CNBkJ/m²ISO 179Unnotched Charpy at -30°CNBkJ/m²ISO 179Notched Izod at 23°C4.7kJ/m²ISO 180Melting temperature, 10°C/min261°CISO 11357HDT at 0.45 MPa200°CISO 75HDT at 1.80 MPa72°CISO 75   |           | Tensile modulus                         | 3100  | MPa                   | ISO 527   |
| Notched Charpy at -30°C4.2kJ/m²ISO 179Unnotched Charpy at 23°CNBkJ/m²ISO 179Unnotched Charpy at -30°CNBkJ/m²ISO 179Notched Izod at 23°C4.7kJ/m²ISO 180Melting temperature, 10°C/min261°CISO 11357HDT at 0.45 MPa200°CISO 75HDT at 1.80 MPa72°CISO 75   | ical      | Flexural modulus                        | 2900  | MPa                   | ISO 178   |
| Notched Charpy at -30°C4.2kJ/m²ISO 179Unnotched Charpy at 23°CNBkJ/m²ISO 179Unnotched Charpy at -30°CNBkJ/m²ISO 179Notched Izod at 23°C4.7kJ/m²ISO 180Melting temperature, 10°C/min261°CISO 11357HDT at 0.45 MPa200°CISO 75HDT at 1.80 MPa72°CISO 75   | chan      | Flexural strength                       | 94    | MPa                   | ISO 178   |
| Vint of the second se | Med       | Notched Charpy at 23°C                  | 5.4   | kJ/m²                 | ISO 179   |
| Unnotched Charpy at -30°CNBkJ/m²ISO 179Notched Izod at 23°C4.7kJ/m²ISO 180Melting temperature, 10°C/min261°CISO 11357HDT at 0.45 MPa200°CISO 75HDT at 1.80 MPa72°CISO 75   |           | Notched Charpy at -30°C                 | 4.2   | kJ/m²                 | ISO 179   |
| Notched Izod at 23°C4.7kJ/m²ISO 180Melting temperature, 10°C/min261°CISO 11357HDT at 0.45 MPa200°CISO 75HDT at 1.80 MPa72°CISO 75  |           | Unnotched Charpy at 23°C                | NB    | kJ/m²                 | ISO 179   |
| Melting temperature, 10°C/min 261 °C ISO 11357   HDT at 0.45 MPa 200 °C ISO 75   HDT at 1.80 MPa 72 °C ISO 75  |           | Unnotched Charpy at -30°C               | NB    | kJ/m²                 | ISO 179   |
| HDT at 0.45 MPa 200 °C ISO 75   HDT at 1.80 MPa 72 °C ISO 75   |           | Notched Izod at 23°C                    | 4.7   | kJ/m²                 | ISO 180   |
| HDT at 1.80 MPa 72 °C ISO 75   | Thermal   | Melting temperature, 10°C/min           | 261   | °C                    | ISO 11357 |
| HDT at 1.80 MPa 72 °C ISO 75   CLTE, 2.0 mm, Parallel, 23 - 55°C 0.9 10-4/°C ISO 11359   |           | HDT at 0.45 MPa                         | 200   | °C                    | ISO 75    |
| E CLTE, 2.0 mm, Parallel, 23 - 55°C 0.9 10-4/°C ISO 11359  |           | HDT at 1.80 MPa                         | 72    | °C                    | ISO 75    |
|  |           | CLTE, 2.0 mm, Parallel, 23 - 55°C       | 0.9   | 10 <sup>-4</sup> / °C | ISO 11359 |
| CLTE, 2.0 mm, Transverse, 23 – 55°C 1.1 10-4/ °C ISO 11359   |           | CLTE, 2.0 mm, Transverse, 23 – 55°C     | 1.1   | 10 <sup>-4</sup> / °C | ISO 11359 |



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|              | Properties (dry)                       | Value | Units  | Method    |
|--------------|--|-------|--------|-----------|
| Electrical   | Surface Resistivity                    | 2E+14 | ohms   | IEC 60093 |
|              | Volume Resistivity, 2.0 mm             | 4E+14 | ohm-cm | IEC 60093 |
|              | Dielectric Strength, 1.0 mm            | 32    | kV/mm  | IEC 60243 |
| Flammability | Flammability Classification at 0.71 mm | V-2   | -      | UL 94     |
|              | Flammability Classification at 0.71 mm | V-2   | -      | UL 94     |
|              | Flammability Classification at 0.71 mm | V-2   | -      | UL 94     |
|              | Glow-Wire Flammability at 0.71 mm      | 960   | °C     | IEC 60695 |
|              | Glow-Wire Flammability at 0.71 mm      | 960   | °C     | IEC 60695 |
|              | Glow-Wire Flammability at 0.71 mm      | 960   | °C     | IEC 60695 |
|              | Glow-Wire Flammability at 0.71 mm      | 960   | °C     | IEC 60695 |
|              | Glow-Wire Flammability at 0.71 mm      | 960   | °C     | IEC 60695 |
|              | Glow-Wire Flammability at 0.71 mm      | 960   | °C     | IEC 60695 |

# **General Information**

#### **Material Status**

Commercial: Active

### Availability

- North America
- South America
- Europe
- Asia

#### **Features**

- Lowe moisture
- Excellent whiteness

## RoHS

No intentional additives or ingredients used in U4800 are among those in European directive 2011/65/EC (RoHS), as amended.

| Process Guidelines for Molding |                 |  |  |  |
|--------------------------------|-----------------|--|--|--|
| Drying temperature             | 80°C            |  |  |  |
| Drying time*                   | 3 - 4 hrs       |  |  |  |
| Barrel temperatures            |                 |  |  |  |
| Rear                           | 250 - 280°C     |  |  |  |
| Middle                         | 275 - 290°C     |  |  |  |
| Front                          | 275 - 290°C     |  |  |  |
| Nozzle                         | 275 - 290°C     |  |  |  |
| Processing temperature (melt)  | 280 - 295°C     |  |  |  |
| Mold temperature               | 50 - 90°C       |  |  |  |
| Back pressure**                | 2-10 bar        |  |  |  |
| Vent depth                     | 0.007 - 0.04 mm |  |  |  |
| Cushion (range)                | 4 – 6 mm        |  |  |  |
| Suggested moisture (max)       | 0.20 wt%        |  |  |  |
| Suggested moister (min)        | 0.10 wt%        |  |  |  |
| Screw Speed                    | 75 - 180 rpm    |  |  |  |

\* Initial moisture below 0.25 wt%. Use dehumidified air.

\*\* Melt pressure

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