



# OnFlex™-U 5180D-S0001

## Thermoplastic Polyurethane Elastomer

### Key Characteristics

#### Product Description

OnFlex™-U Thermoplastic Elastomer Compounds are based on thermoplastic polyurethane elastomers (TPE-U). The OnFlex™-U 5100 series combines glass fibres with TPE-U to provide outstanding stiffness, abrasion resistance and other unique mechanical properties. OnFlex™-U 5100 compounds are formulated to deliver excellent abrasion resistance, impact resistance, a low coefficient of thermal expansion and excellent mechanical properties.

#### General

|                        |                                                          |                                              |                           |
|------------------------|----------------------------------------------------------|----------------------------------------------|---------------------------|
| Material Status        | • Commercial: Active                                     |                                              |                           |
| Regional Availability  | • Africa & Middle East<br>• Asia Pacific                 | • Europe<br>• North America                  | • South America           |
| Filler / Reinforcement | • Glass Fiber Reinforcement, 30% Filler by Weight        |                                              |                           |
| Features               | • Good Abrasion Resistance                               | • Good Dimensional Stability                 | • Good Stiffness          |
| Uses                   | • Automotive Applications<br>• Construction Applications | • Consumer Applications<br>• General Purpose | • Industrial Applications |
| RoHS Compliance        | • RoHS Compliant                                         |                                              |                           |
| Forms                  | • Pellets                                                |                                              |                           |
| Processing Method      | • Injection Molding                                      |                                              |                           |

### Technical Properties<sup>1</sup>

| Physical                         | Typical Value (English)    | Typical Value (SI)     | Test Method |
|----------------------------------|----------------------------|------------------------|-------------|
| Density                          | 1.43 g/cm <sup>3</sup>     | 1.43 g/cm <sup>3</sup> | ISO 1183    |
| Mechanical                       | Typical Value (English)    | Typical Value (SI)     | Test Method |
| Flexural Modulus                 | 508000 psi                 | 3500 MPa               | ISO 178     |
| Elastomers                       | Typical Value (English)    | Typical Value (SI)     | Test Method |
| Tensile Stress (Break)           | 14500 psi                  | 100 MPa                | ISO 37      |
| Tensile Elongation (Break)       | 16 %                       | 16 %                   | ISO 37      |
| Impact                           | Typical Value (English)    | Typical Value (SI)     | Test Method |
| Charpy Notched Impact Strength   |                            |                        | ISO 179     |
| -40°F (-40°C)                    | 5.04 ft·lb/in <sup>2</sup> | 10.6 kJ/m <sup>2</sup> |             |
| 73°F (23°C)                      | 5.04 ft·lb/in <sup>2</sup> | 10.6 kJ/m <sup>2</sup> |             |
| Charpy Unnotched Impact Strength |                            |                        | ISO 179     |
| -40°F (-40°C)                    | No Break                   | No Break               |             |
| 73°F (23°C)                      | No Break                   | No Break               |             |
| Hardness                         | Typical Value (English)    | Typical Value (SI)     | Test Method |
| Shore Hardness (Shore D)         | 80                         | 80                     | ISO 868     |

#### Additional Properties

Properties are measured using injection molded plaques.

### Processing Information

| Injection              | Typical Value (English) | Typical Value (SI) |
|------------------------|-------------------------|--------------------|
| Drying Temperature     | 212 °F                  | 100 °C             |
| Drying Time            | 2.0 hr                  | 2.0 hr             |
| Processing (Melt) Temp | 437 to 482 °F           | 225 to 250 °C      |
| Mold Temperature       | 86.0 to 140 °F          | 30.0 to 60.0 °C    |
| Injection Rate         | Slow                    | Slow               |

#### Notes

<sup>1</sup> Typical values are not to be construed as specifications.

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