

# DuraGrip® DGR 6080NC

Thermoplastic Elastomer

Advanced Polymer Alloys

## Message:

DuraGrip® DGR 6080NC is designed to be a general purpose Thermoplastic Elastomer (TPE) that is easy to use in injection molding and extrusion processes. DGR 6080NC has an excellent soft touch feel, will bond to olefinics, is easy to color, and is available in FDA compliant formulations. DuraGrip® is not hygroscopic and under normal conditions does not require drying.

| General Information                                           |                      |                   |                     |
|---------------------------------------------------------------|----------------------|-------------------|---------------------|
| Features                                                      | Good coloring        |                   |                     |
|                                                               | General              |                   |                     |
| Agency Ratings                                                | EU 2002/96/EC (WEEE) |                   |                     |
|                                                               | FDA not rated        |                   |                     |
| RoHS Compliance                                               | RoHS compliance      |                   |                     |
| Forms                                                         | Particle             |                   |                     |
| Processing Method                                             | Extrusion            |                   |                     |
|                                                               | Injection molding    |                   |                     |
| Physical                                                      | Nominal Value        | Unit              | Test Method         |
| Specific Gravity                                              | 0.988                | g/cm <sup>3</sup> | ASTM D792, ISO 1183 |
| Molding Shrinkage                                             |                      |                   |                     |
| Flow: 1.59mm                                                  | 1.4                  | %                 | ASTM D955           |
| Flow: 3.18mm                                                  | 1.3                  | %                 | ASTM D955           |
| Transverse flow: 1.59mm                                       | 0.50                 | %                 | ASTM D955           |
| Transverse flow: 3.18mm                                       | 1.1                  | %                 | ASTM D955           |
| Vertical flow direction: 1.59mm                               | 0.50                 | %                 | ISO 294-4           |
| Flow direction: 1.59mm                                        | 1.4                  | %                 | ISO 294-4           |
| Vertical flow direction: 3.18mm                               | 1.1                  | %                 | ISO 294-4           |
| Flow direction: 3.18mm                                        | 1.3                  | %                 | ISO 294-4           |
| Hardness                                                      | Nominal Value        | Unit              | Test Method         |
| Durometer Hardness (Shore A, 5 sec)                           | 78                   |                   | ASTM D2240, ISO 868 |
| Mechanical                                                    | Nominal Value        | Unit              | Test Method         |
| Taber Abrasion Resistance (1000 Cycles, 1.0E 6g, CS-17 wheel) | 12.5                 | mg                | ASTM D1044          |
| Elastomers                                                    | Nominal Value        | Unit              | Test Method         |
| Tensile Set (100% Strain)                                     | 16                   | %                 | ASTM D412           |
| Tensile Stress                                                |                      |                   |                     |
| 100% strain                                                   | 2.54                 | MPa               | ASTM D412           |
| 100% strain, 23°C                                             | 2.54                 | MPa               | ISO 37              |

| Tensile Strength (Yield, 23°C)                                                                                                                                                   | 8.30          | MPa    | ASTM D412, ISO 37   |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------|---------------------|
| Tensile Elongation                                                                                                                                                               |               |        |                     |
| Fracture                                                                                                                                                                         | 310           | %      | ASTM D412           |
| Fracture, 23°C                                                                                                                                                                   | 310           | %      | ISO 37              |
| Tear Strength <sup>1</sup> (24°C)                                                                                                                                                | 33.4          | kN/m   | ASTM D624           |
| Compression Set                                                                                                                                                                  |               |        | ASTM D395B, ISO 815 |
| 24°C, 22 hr                                                                                                                                                                      | 26            | %      | ASTM D395B, ISO 815 |
| 70°C, 22 hr                                                                                                                                                                      | 48            | %      | ASTM D395B, ISO 815 |
| 100°C, 22 hr                                                                                                                                                                     | 63            | %      | ASTM D395B, ISO 815 |
| Aging                                                                                                                                                                            | Nominal Value | Unit   | Test Method         |
| Change in Tensile Strength in Air                                                                                                                                                |               |        |                     |
| 70°C, 168 hr                                                                                                                                                                     | -2.0          | %      | ASTM D573, ISO 188  |
| 100% strain, 70°C, 168 hr                                                                                                                                                        | 7.0           | %      | ASTM D573           |
| 100°C, 168 hr                                                                                                                                                                    | -2.0          | %      | ASTM D573, ISO 188  |
| 100% strain, 100°C, 168 hr                                                                                                                                                       | 7.0           | %      | ASTM D573           |
| 100% strain 70°C, 168 hr                                                                                                                                                         | 7.0           | %      | ISO 188             |
| 100% strain 100°C, 168 hr                                                                                                                                                        | 7.0           | %      | ISO 188             |
| Change in Ultimate Elongation in Air                                                                                                                                             |               |        | ASTM D573           |
| 70°C, 168 hr                                                                                                                                                                     | -5.0          | %      | ASTM D573           |
| 100°C, 168 hr                                                                                                                                                                    | 4.0           | %      | ASTM D573           |
| Change in Tensile Strain at Break                                                                                                                                                |               |        | ISO 1817            |
| 70°C, 168 hr                                                                                                                                                                     | -5.0          | %      | ISO 1817            |
| 100°C, 168 hr                                                                                                                                                                    | 4.0           | %      | ISO 1817            |
| Change in Volume                                                                                                                                                                 |               |        |                     |
| 24°C, 168 hr, in reference fuel B                                                                                                                                                | 54            | %      | ASTM D471           |
| 100°C, 168 hr, ASTM Standard Oil (No.1)                                                                                                                                          | 6.0           | %      | ASTM D471           |
| 100°C, 168 hr, in IRM 903 oil                                                                                                                                                    | 82            | %      | ASTM D471           |
| 100°C, 168 hr, in water                                                                                                                                                          | 1.0           | %      | ASTM D471, ISO 1817 |
| 24°C, 168 hr, in reference fuel B                                                                                                                                                | 54            | %      | ISO 1817            |
| 100°C, 168 hr, in ASTM #1 oil                                                                                                                                                    | 6.0           | %      | ISO 1817            |
| 100°C, 168 hr, in IRM 903 oil                                                                                                                                                    | 82            | %      | ISO 1817            |
| Thermal                                                                                                                                                                          | Nominal Value | Unit   | Test Method         |
| Brittleness Temperature                                                                                                                                                          | -61.1         | °C     | ASTM D746, ISO 812  |
| Fill Analysis                                                                                                                                                                    | Nominal Value | Unit   | Test Method         |
| Melt Viscosity (190°C, 300 sec <sup>-1</sup> )                                                                                                                                   | 219           | Pa · s | ASTM D3835          |
| Additional Information                                                                                                                                                           |               |        |                     |
| The value listed as Density -Specific Gravity, ASTM D792, was tested in accordance with ASTM D471.The value listed as Density, ISO 1183, was tested in accordance with ISO 2781. |               |        |                     |
| Injection                                                                                                                                                                        | Nominal Value | Unit   |                     |
| Drying Temperature                                                                                                                                                               | 65.6          | °C     |                     |
| Drying Time                                                                                                                                                                      | 3.0           | hr     |                     |
| Suggested Max Regrind                                                                                                                                                            | 25            | %      |                     |

|                        |             |     |
|------------------------|-------------|-----|
| Rear Temperature       | 188 - 199   | °C  |
| Middle Temperature     | 199 - 210   | °C  |
| Front Temperature      | 216 - 227   | °C  |
| Nozzle Temperature     | 204 - 221   | °C  |
| Processing (Melt) Temp | 199 - 221   | °C  |
| Mold Temperature       | 43.3 - 54.4 | °C  |
| Injection Pressure     | 1.03 - 4.14 | MPa |
| Screw Speed            | 25 - 100    | rpm |

#### Injection instructions

DuraGrip® is not hygroscopic, under normal conditions does not require drying. Dry in a desiccant dryer if porosity is observed. Injection Speed: 1 to 3 in<sup>3</sup>/sec Injection Time (1st Stage/Boost): 0.5 to 4 sec Second Stage Pressure: 150 to 300 psi Second Stage Time: 3 to 10 sec Cooling Time: 10 to 20 sec Back Pressure: 20 to 75 %

#### NOTE

1. C mould

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