

Technical Data Sheet

Duragrip DGR 6040NC

Thermoplastic Elastomer
LyondellBasell Industries
Engineering Plastics

Product Description

DuraGrip® DGR 6040 NC is designed to be a general purpose Thermoplastic Elastomer (TPE) that is easy to use in injection molding and extrusion processes. DGR 6040NC has an excellent soft touch feel, will bond to olefinics, and is available in FDA compliant formulations. DuraGrip® is not hygroscopic and under normal conditions does not require drying.

General

Features	• General Purpose
Agency Ratings	• EU 2002/96/EC (WEEE) • FDA
RoHS Compliance	• RoHS Compliant
Forms	• Pellets
Processing Method	• Extrusion • Injection Molding

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density / Specific Gravity			
--	0.990	0.988 g/cm ³	ASTM D792
--	0.988 g/cm ³	0.988 g/cm ³	ISO 1183
Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Taber Abrasion Resistance			ASTM D1044
1000 Cycles, 1.0e+6 G, Cs-17 Wheel	120 mg	120 mg	
Elastomers	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Set (100% Strain)	7 %	7 %	ASTM D412
Tensile Stress			
100% Strain	180 psi	1.24 MPa	ASTM D412
100% Strain, 73°f (23°c)	180 psi	1.24 MPa	ISO 37
Tensile Strength (Yield, 73°f (23°c))	752 psi	5.18 MPa	ASTM D412 ISO 37
Tensile Elongation			
Break	450 %	450 %	ASTM D412
Break, 73°f (23°c)	450 %	450 %	ISO 37
Tear Strength ¹ (75°f (24°c))	87.0 lbf/in	15.2 kN/m	ASTM D624
Compression Set			ASTM D395B ISO 815
75°f (24°c), 22 Hr	14 %	14 %	
158°f (70°c), 22 Hr	34 %	34 %	
212°f (100°c), 22 Hr	62 %	62 %	
Hardness	Nominal Value (English)	Nominal Value (SI)	Test Method
Durometer Hardness (Shore A, 5 Sec)	42	42	ASTM D2240 ISO 868
Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Brittleness Temperature	-89.0 °F	-67.2 °C	ASTM D746 ISO 812

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Aging	Nominal Value (English)	Nominal Value (SI)	Test Method
Change in Tensile Strength in Air			
158°F (70°C), 168 Hr	-6.0 %	-6.0 %	ASTM D573 ISO 188
100% Strain, 158°F (70°C), 168 Hr	-6.0 %	-6.0 %	ASTM D573
212°F (100°C), 168 Hr	-11 %	-11 %	ASTM D573 ISO 188
100% Strain, 212°F (100°C), 168 Hr	-4.0 %	-4.0 %	ASTM D573
100% Strain 158°F (70°C), 168 Hr	-6.0 %	-6.0 %	ISO 188
100% Strain 212°F (100°C), 168 Hr	-4.0 %	-4.0 %	ISO 188
Change in Ultimate Elongation in Air			
158°F (70°C), 168 Hr	4.0 %	4.0 %	ASTM D573
212°F (100°C), 168 Hr	1.0 %	1.0 %	
Change in Tensile Strain at Break			
158°F (70°C), 168 Hr	4.0 %	4.0 %	ISO 1817
212°F (100°C), 168 Hr	1.0 %	1.0 %	
Change in Volume			
75°F (24°C), 168 Hr, In Reference Fuel B	15 %	15 %	ASTM D471 ISO 1817
212°F (100°C), 168 Hr, In Astm #1 Oil	4.0 %	4.0 %	
212°F (100°C), 168 Hr, In Irm 903 Oil	45 %	45 %	
212°F (100°C), 168 Hr, In Water	-10 %	-10 %	
Fill Analysis	Nominal Value (English)	Nominal Value (SI)	Test Method
Melt Viscosity (374°F (190°C), 300 Sec ⁻¹)	112 Pa·s	112 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.

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Injection	Nominal Value (English)	Nominal Value (SI)
Drying Temperature	150 °F	66 °C
Drying Time	3.0 hr	3.0 hr
Rear Temperature	370 to 390 °F	188 to 199 °C
Middle Temperature	390 to 410 °F	199 to 210 °C
Front Temperature	420 to 440 °F	216 to 227 °C
Nozzle Temperature	400 to 430 °F	204 to 221 °C
Processing (Melt) Temp	390 to 430 °F	199 to 221 °C
Mold Temperature	110 to 130 °F	43 to 54 °C
Injection Pressure	150 to 600 psi	1.03 to 4.14 MPa
Screw Speed	25 to 100 rpm	25 to 100 rpm

Injection Notes

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 in³/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 %