

Telcar® TL-8451

Teknor Apex Company - Thermoplastic Elastomer

Saturday, September 14, 2024

General Information

Product Description

Telcar TL-8451 is a high performance, halogen-free thermoplastic elastomer designed for electrical applications requiring flexibility over a wide temperature range. Telcar TL-8451 is a high durometer grade that is UV stabilized. This grade is UL listed and is suitable for both injection molding and extrusion.

General

Material Status	• Commercial: Active		
Availability	• Africa & Middle East • Asia Pacific	• Europe • Latin America	• North America
Features	• General Purpose • Good Colorability • Good Flexibility • Good Weather Resistance • Halogen Free	• Heat Aging Resistant • High Elasticity • High Elongation • High Hardness • High Tensile Strength	• Medium Density • Medium Flow • Ozone Resistant • Sunlight Resistant (720 hours) • UV Resistant
Uses	• Appliance Wire Insulation • Appliance Wire Jacketing • Cable Jacketing • Connectors	• Flexible Cord Jacketing • Industrial Cable Insulation • Rubber Replacement • Terminal Cable Jacketing	• Underground Power Cable • Wire & Cable Applications • Wire Jacketing
Wire Types	• SJEOW		
Agency Ratings	• UL 1581 ¹	• UL 94	
UL File Number	• QMTT2.E73402	• QMFZ2.E54709	
Appearance	• Black	• Opaque	
Forms	• Pellets		
Processing Method	• Extrusion	• Injection Molding	

ASTM & ISO Properties ²

Physical	Nominal Value	Unit	Test Method
Density / Specific Gravity	0.998	g/cm ³	ASTM D792
Melt Mass-Flow Rate (MFR) (200°C/5.0 kg)	20	g/10 min	ASTM D1238
Mechanical	Nominal Value	Unit	Test Method
Deformation Under Load ³ (150°C)	6.00	%	ASTM D621
Elastomers	Nominal Value	Unit	Test Method
Tensile Stress ^{4, 5} (100% Strain, 0.508 mm)	4.52	MPa	ASTM D412
Tensile Stress ^{4, 5} (300% Strain, 0.508 mm)	6.21	MPa	ASTM D412
Tensile Strength ^{4, 5} (Break, 0.508 mm)	16.5	MPa	ASTM D412
Tensile Elongation ^{4, 5} (Break, 0.508 mm)	660	%	ASTM D412
Hardness	Nominal Value	Unit	Test Method
Durometer Hardness (Shore A)	84		ASTM D2240
Thermal	Nominal Value	Unit	Test Method
Continuous Use Temperature	105	°C	UL 1581
Brittleness Temperature	< -60.0	°C	ASTM D746
RTI Elec	90.0	°C	UL 746B
RTI Str	90.0	°C	UL 746B

Revision Date: 3/28/2019

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Aging	Nominal Value	Unit	Test Method
Change in Tensile Strength in Air (136°C, 168 hr)	4.0	%	ASTM D573
Change in Ultimate Elongation in Air (136°C, 168 hr)	-8.0	%	ASTM D573
Change in Tensile Strength 60°C, 168 hr, in IRM 902 Oil	-14	%	ASTM D471
Change in Ultimate Elongation 60°C, 168 hr, in IRM 902 Oil	-7.0	%	ASTM D471
Electrical	Nominal Value	Unit	Test Method
Volume Resistivity (50°C)	9.6E+16	ohms·cm	ASTM D257
Dielectric Strength	38	kV/mm	ASTM D149
Dielectric Constant			ASTM D150
1 kHz	2.10		
1 MHz	2.33		
Dissipation Factor			ASTM D150
1 kHz	2.0E-4		
1 MHz	1.0E-4		
Flammability	Nominal Value	Unit	Test Method
Flame Rating (0.8 mm, All Colors)	HB		UL 94
Oxygen Index	18	%	ASTM D2863

Additional Information

Maximum Continuous Operating Temperature, UL-1581: 105°C

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Processing Information

Injection	Nominal Value	Unit
Rear Temperature	199 to 216	°C
Middle Temperature	213 to 221	°C
Front Temperature	221 to 227	°C
Nozzle Temperature	221 to 229	°C
Processing (Melt) Temp	221 to 229	°C
Mold Temperature	25 to 66	°C
Injection Pressure	1.38 to 6.89	MPa
Injection Rate	Moderate-Fast	
Back Pressure	0.172 to 0.345	MPa
Screw Speed	50 to 100	rpm
Cushion	3.81 to 25.4	mm

Injection Notes

Drying is not necessary. However, if moisture is a problem, dry the pellets for 2 to 4 hours at 150°F (65°C)

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Extrusion	Nominal Value	Unit
Cylinder Zone 1 Temp.	193 to 210	°C
Cylinder Zone 2 Temp.	199 to 216	°C
Cylinder Zone 3 Temp.	213 to 221	°C
Cylinder Zone 4 Temp.	213 to 221	°C
Cylinder Zone 5 Temp.	221 to 227	°C
Die Temperature	221 to 229	°C

Extrusion Notes

Screw Speed: 30 to 100 rpm

Notes

¹ 105°C

² Typical properties: these are not to be construed as specifications.

³ 2000g weight

⁴ Die C, 510 mm/min

⁵ die cut from extruded tapes

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