Elexar® EL-8451

Teknor Apex Company - Thermoplastic Elastomer

Friday, June 30, 2017

General Information

Product Description

Elexar EL-8451 is higher performance, halogen-free thermoplastic elastomer designed for electrical applications requiring flexibility over a wide temperature range. Elexar EL-8451 is a high durometer grade that is UV stablized and RoHS compliant. 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 • 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 • Weather 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
Agency Ratings	• UL 1581	• UL 94	
RoHS Compliance	• RoHS Compliant		
Automotive Specifications	• CHRYSLER MS-DC-242 Color: Natural	• CHRYSLER MS-DC-242 CPN3207 Color: Black	
UL File Number	• QMTT2.73402	• QMFZ2.E54709	
Appearance	• Opaque		
Forms	• Pellets		
Processing Method	• Extrusion	• Injection Molding	

ASTM & ISO Properties [1]

Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.00		ASTM D792
Melt Mass-Flow Rate (MFR) (200°C/5.0 kg)	19	g/10 min	ASTM D1238
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Flexural Modulus	15000	psi	ASTM D790
Elastomers	**Nominal Value**	**Unit**	**Test Method**
Tensile Stress [2, 3] (100% Strain, 0.0200 in)	655	psi	ASTM D412
Tensile Stress [2, 3] (300% Strain, 0.0200 in)	900	psi	ASTM D412
Tensile Strength [2, 3] (Yield, 0.0200 in)	2450	psi	ASTM D412
Tensile Elongation [2, 3] (Break, 0.0200 in)	650	%	ASTM D412
Hardness	**Nominal Value**	**Unit**	**Test Method**
Durometer Hardness (Shore A)	84		ASTM D2240
Thermal	**Nominal Value**	**Unit**	**Test Method**
Continuous Use Temperature	221	°F	UL 1581
Brittleness Temperature	-76.0	°F	ASTM D746
RTI Elec	194	°F	UL 746
RTI Str	194	°F	UL 746
Aging	**Nominal Value**	**Unit**	**Test Method**
Change in Tensile Strength in Air (277°F, 168 hr)	4.0	%	ASTM D573
Change in Ultimate Elongation in Air (277°F, 168 hr)	-8.0	%	ASTM D573

Revision Date: 2/1/2016

Elexar® EL-8451

Teknor Apex Company - Thermoplastic Elastomer

Aging	Nominal Value	Unit	Test Method
Change in Tensile Strength			ASTM D471
140°F, 168 hr, in IRM 902 Oil	-5.0	%	
Change in Ultimate Elongation			ASTM D471
140°F, 168 hr, in IRM 902 Oil	-7.0	%	

Electrical	Nominal Value	Unit	Test Method
Volume Resistivity (122°F)	9.6E+16	ohms·cm	ASTM D257
Dielectric Strength	970	V/mil	ASTM D149
Dielectric Constant			ASTM D150
1 kHz	2.36		
1 MHz	2.37		
Dissipation Factor			ASTM D150
1 kHz	1.0E-4		
1 MHz	1.2E-3		

Flammability	Nominal Value	Unit	Test Method
Flame Rating (0.03 in, All Colors)	HB		UL 94
Oxygen Index	18	%	ASTM D2863

Additional Information

UL-1581: Meets 720 hour Sunlight Resistance

Legal Statement

Processing Information

Injection	Nominal Value	Unit
Rear Temperature	390 to 420	°F
Middle Temperature	415 to 430	°F
Front Temperature	430 to 440	°F
Nozzle Temperature	430 to 445	°F
Processing (Melt) Temp	430 to 445	°F
Mold Temperature	77 to 150	°F
Injection Pressure	200 to 1000	psi
Injection Rate	Moderate-Fast	
Back Pressure	25.0 to 50.0	psi
Screw Speed	50 to 100	rpm
Cushion	0.150 to 1.00	in

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).

Extrusion	Nominal Value	Unit
Cylinder Zone 1 Temp.	380 to 410	°F
Cylinder Zone 2 Temp.	390 to 420	°F
Cylinder Zone 3 Temp.	415 to 430	°F
Cylinder Zone 4 Temp.	415 to 430	°F
Cylinder Zone 5 Temp.	430 to 440	°F
Die Temperature	430 to 445	°F

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Extrusion Notes

Screw Speed: 30 to 100 rpm

Notes

[1] Typical properties: these are not to be construed as specifications.

[2] Die C, 20 in/min

[3] die cut from extruded tapes

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