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TEKNOR APEX

Elexar® EL-8614

Teknor Apex Company - Thermoplastic Elastomer

General Information

Product Description

Elexar EL-8614 is a high performance thermoplastic elastomer designed for a variety of electrical applications requiring flexibility over a wide temperature range. Elexar EL-8614 is a high density, high hardness, halogenated, flame-retardant grade that is 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	• Filled • Flame Retardant • Halogenated	• High Density • High Hardness • High Specific Gravity	• Low Flow
Uses	• Appliance Wire Insulation • Appliance Wire Jacketing • Cable Jacketing • Connectors	• Flexible Cord Jacketing • Industrial Cable Insulation • Terminal Cable Jacketing • Underground Power Cable	• Wire & Cable Applications • Wire Jacketing
Agency Ratings	• UL Unspecified Rating		
RoHS Compliance	• RoHS Compliant		
Appearance	• Black	• Natural Color	• Opaque
Forms	• Pellets		
Processing Method	• Extrusion	• Injection Molding	

ASTM & ISO Properties [1]

Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.16		ASTM D792
Melt Mass-Flow Rate (MFR) (230°C/2.16 kg)	3.0	g/10 min	ASTM D1238
Water Absorption [2] (Equilibrium, 176°F)	3.3	%	ASTM D570
Elastomers	**Nominal Value**	**Unit**	**Test Method**
Tensile Stress (100% Strain)	992	psi	ASTM D412
Tensile Stress (300% Strain)	1230	psi	ASTM D412
Tensile Strength (Yield)	2240	psi	ASTM D412
Tensile Elongation (Break)	570	%	ASTM D412
Tear Strength	380	lbf/in	ASTM D624
Hardness	**Nominal Value**	**Unit**	**Test Method**
Durometer Hardness			ASTM D2240
Shore A, 5 sec	96		
Shore D, 5 sec	54		
Thermal	**Nominal Value**	**Unit**	**Test Method**
Continuous Use Temperature	257	°F	UL 1581
Brittleness Temperature	-56.2	°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)	-14	%	ASTM D573
Change in Ultimate Elongation in Air (277°F, 168 hr)	-20	%	ASTM D573
Change in Tensile Strength			ASTM D471
140°F, 168 hr, in ASTM #2 Oil	-18	%	

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Aging	Nominal Value	Unit	Test Method
Change in Ultimate Elongation			ASTM D471
140°F, 168 hr, in ASTM #2 Oil	-14	%	
Electrical	**Nominal Value**	**Unit**	**Test Method**
Surface Resistivity	3.5E+16	ohms	ASTM D257
Volume Resistivity	2.2E+16	ohms·cm	ASTM D257
Dielectric Constant			ASTM D150
77°F, 60 Hz	2.34		
77°F, 1 kHz	2.80		
77°F, 1 MHz	2.30		
Dissipation Factor			ASTM D150
77°F, 60 Hz	2.0E-3		
77°F, 1 kHz	2.0E-3		
77°F, 1 MHz	5.0E-3		
Flammability	**Nominal Value**	**Unit**	**Test Method**
Flame Rating			UL 94
0.06 in, Natural Color	HB		
0.12 in, Natural Color	V-1		
Oxygen Index	25	%	ASTM D2863
Additional Information			
EM 60 at 75C (167F): 1 day SIC(80V/mil)=2.50, % change in SIC, 1 to 14 days=4.07, Stability factor, 14 days=0.97, Power factor, 14 days=1.23			

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 5 Temp.	430 to 440	°F

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Extrusion	Nominal Value	Unit
Die Temperature	430 to 445	°F

Extrusion Notes
Screw Speed: 30 to 100 rpm

Notes

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

[2] 168HR, mg/sq in