TPE 5187 LSZH

Oil Resistant Low Smoke Zero Halogen Flame Retardant Thermoplastic Vulcanizate (TPV)

Description

TPE 5187 LSZH is a natural, olefin-based thermoplastic vulcanizate (TPV) intended for wire and cable jacketing applications where oil resistance and excellent flame retardancy are required.

TPE 5187 LSZH contains a novel non-halogen intumescent flame retardant additive package designed to reduce normal PE flame spread characteristics and achieve a VW-1 flame resistant rating on 14 AWG wires and larger. It also offers good extrusion processing characteristics on either conventional polyethylene or PVC extrusion lines.

TPE 5187 LSZH is readily pigmented to a variety of colors using standard wire and cable color concentrates designed for thermoplastic or crosslinked polyolefins. **TPE 5187 LSZH** contains UV light stabilizers.

TPE 5187 LSZH complies with “Restriction of Hazardous Substances” Directive, Citation 2002-95-EC, commonly known as RoHS.

Specifications

Cables manufactured using **TPE 5187 LSZH** in accordance with standard industry practices should meet the following industry cable specifications:

- Underwriters Laboratories Standard 62 Class 1.14 and 1.18 for Jacketing
- Underwriters Laboratories Standard UL 1277 for Tray Cable Jacketing
- Underwriters Laboratories Standard 62 Class 36 Insulation and Jacketing

General Processing Guidelines

Extrusion start-up and shut-down procedures are similar to those of polyethylene. Since these materials are non- corrosive or abrasive, no special recommendations are made for barrel and screw materials of construction. A suggested melt temperature of 390ºF (199ºC) should provide a good quality product. Exposure of this material to elevated temperatures >450ºF (230ºC) for prolonged periods of time has been shown to decrease long-term stability. Preheating the conductor to 150 to 200 ºF is recommended during insulation extrusion to minimize orientation and internal stress that could result in poorer physical properties. Compound should be dried 4-6 hours at a temperature of 65°C before use.

Physical Properties	Typical Value [2] [3]	Unit	Test Method [1]
Density	1.11	g / cm^3	ASTM D 792
Tensile Strength	1350 (89.3)	psi (MPa)	ASTM D 412
Ultimate Elongation	302	%	ASTM D 412
Chord Modulus (0.5% to 1.0%)	59,000 (407)	psi (MPa)	ASTM D 790
Heat Aging, 7 days at 136°C			UL 1581
Tensile Strength Retention	110	%	ASTM D 412
Ultimate Elongation Retention	93	%	ASTM D 412
Cold Impact -25ºC	Pass	°C	ASTM D 746
Oil Resistance 96h @ 100°C Retained Tensile	95	%	UL 1277
Retained Elongation	64	%	
Oil Resistance 60 days @ 70°C Retained Tensile	85	%	UL 1277
Retained Elongation	66	%	
Durometer Hardness, Shore A (15s delay)	92	-	ASTM D 2240
Heat Deformation 150°C, 2,000g	1.4	%	UL 2556
Limiting Oxygen Index	40	%	ASTM D 2863
UL 94 (.063”)	V-0	-	UL 2556

Electrical Properties	Typical Value [2]	Unit	Test Method [1]
Dielectric Constant (60 Hz)	3.40	-	ASTM D 150
Dissipation Factor (60 Hz)	0.040	-	ASTM D 150
Dielectric Strength	990	V / mil	ASTM D 149
Volume Resistivity	1.6 x 10^{16}	Ω cm	ASTM D 257

Suggested Extrusion Equipment		Suggested Extrusion Conditions	
Extruder L/D:	20:1 (minimum)	Throat:	Water-cooled
Extruder L/D:	24:1 (preferred)	Zone 1:	365°F
Screw:	Barrier or Single Flight	Zone 2:	375°F
Compression Ratio:	2.7 to 3.5:1	Zone 3:	385°F
Die:	Smooth transition,	Zone 4:	390°F
	With >= 1/8 in. land	Head / Die:	390°F
	Die & Tip include angle: 22-35°		

(1) Tested in accordance with the latest issue of the designated Test Methods.
(2) Data represents typical values and should not be used for specification work.
(3) All physical properties tested on a 0.020 inch thick extruded tape

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