



TPE 5970 LSZH

Low Smoke Zero Halogen Flame Retardant Thermoplastic Elastomer (TPE)

Description

TPE 5970 LSZH is a natural thermoplastic elastomer (TPE) intended for wire and cable jacketing applications where maximum flame resistance is required. **TPE 5970 LSZH** has a very low heat release when measured in the cone calorimeter per ASTM E 1354-11b. Smoke k(1/m) measurements are very low when compared to halogen or conventional metal hydrate compounds.

TPE 5970 LSZH contains a novel non-halogen intumescent flame retardant additive package designed to reduce normal flame spread characteristics and achieve a VW-1 flame resistant rating on 18 AWG wires and larger. It also offers good extrusion processing characteristics on either conventional polyethylene or PVC extrusion lines. In addition, **TPE 5970 LSZH** contains a UV stabilization additive package that provides effective long-term UV weather resistance.

TPE 5970 LSZH is readily pigmented to a variety of colors using standard wire and cable color concentrates designed for thermoplastic or crosslinked polyolefins.

Application

TPE 5970 LSZH is intended for use as a plenum or riser cable jacket. This product is rated a V-0 by UL Standard 94 at a minimum thickness of 0.062 inches. **TPE 5970 LSZH** is expected to achieve a VW-1 flame resistance on 18 AWG or larger conductors as per UL Standard 1581.

Specifications

Cables manufactured using **TPE 5970 LSZH** in accordance with standard industry practices should meet the flame requirements of the following industry cable specifications:

- Underwriters Laboratories Standard 444 CMP & CMR
- Underwriters Laboratories Standard 1277 Tray Cable
- Underwriters Laboratories Standard Test for Flame Propagation Height of Electrical & Fiber Optic Cables Installed Vertically
- Underwriters Laboratories Standard 94 V-0
- Underwriters Laboratories Standard 758 Style 1722 Appliance Wire

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 390°F (199°C) should provide a good quality product. Exposure of these materials to elevated temperatures >450°F (230°C) for prolonged periods of time has been shown to decrease long-term stability. Preheating the conductor to 125-150°C is recommended during insulation extrusion to minimize orientation and internal stress that could result in poorer physical properties.

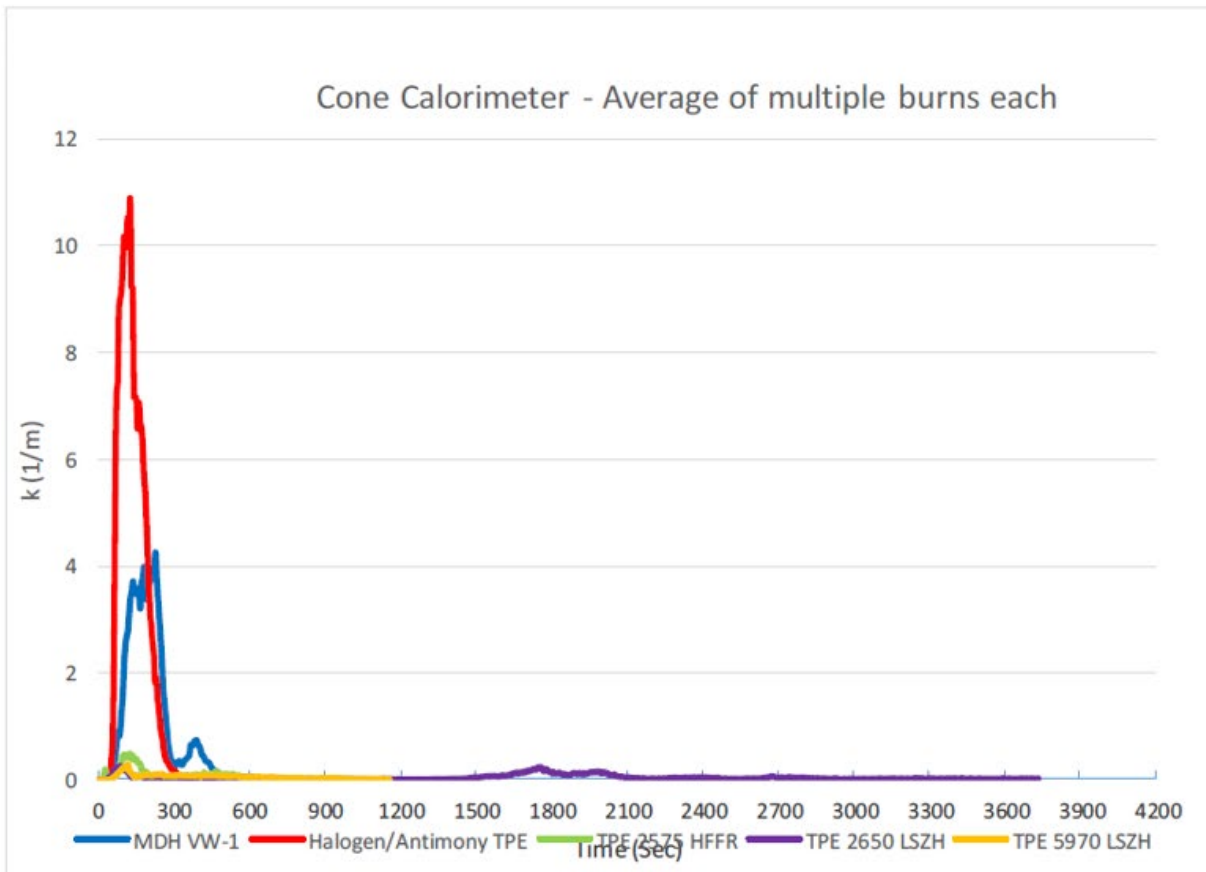
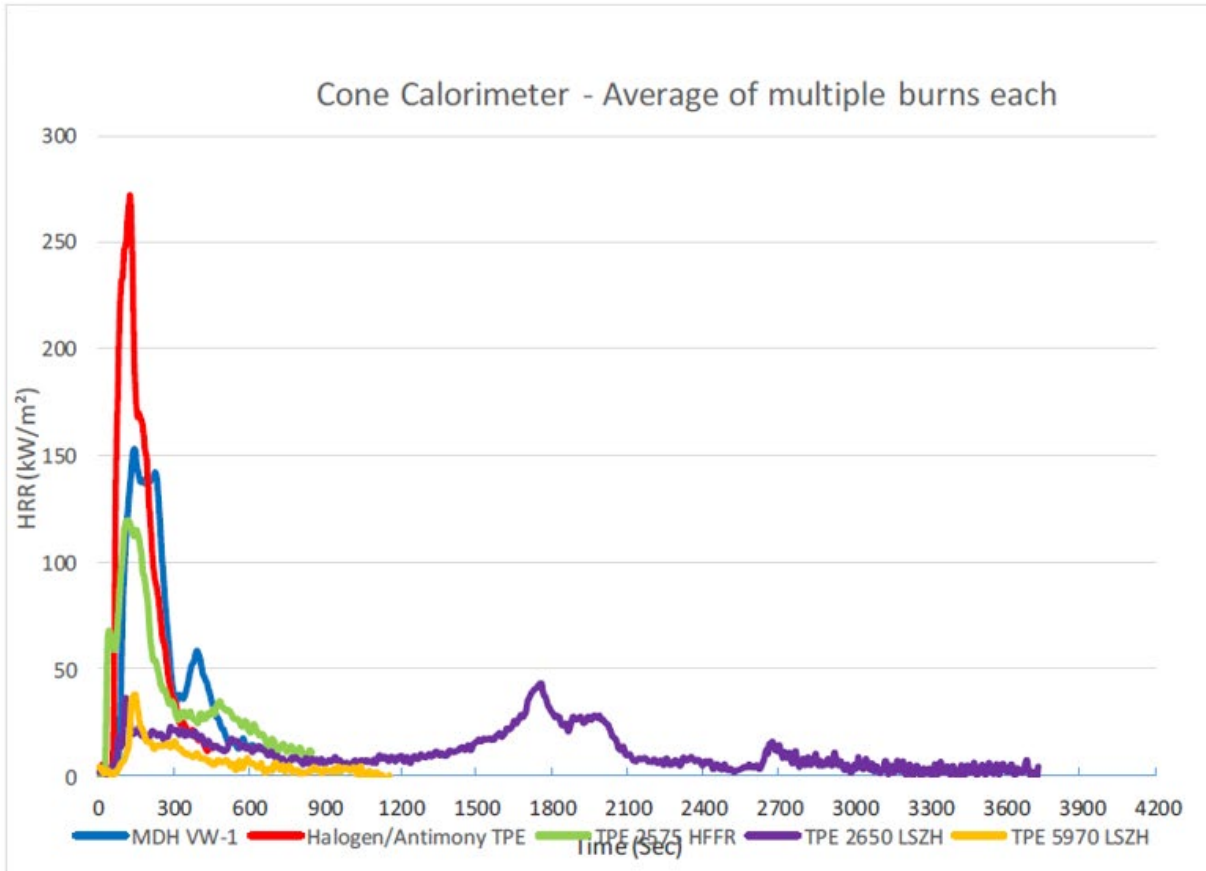
Physical Properties	Typical Value ⁽²⁾⁽⁴⁾	Unit	Test Method ⁽¹⁾
Density	1.36	g / cm ³	ASTM D 792
Tensile Strength	756 (5.1)	psi (Mpa)	ASTM D 412
Ultimate Elongation	213	%	ASTM D 412
Chord Modulus (0.5% to 1.0%)	59,051 (407)	psi (Mpa)	ASTM D 790
Heat Aging, 7 days at 158°C			UL 1581
Tensile Strength Retention	81	%	ASTM D 412
Ultimate Elongation Retention	100	%	ASTM D 412
Hardness, Shore A (15s delay)	98	-	ASTM D 2240
Limiting Oxygen Index	70	%	ASTM D 2863
Flammability	V-0	-	UL 94
Heat Deformation, 150°C, 2,000 g	6.0	%	UL 2556

Suggested Extrusion Equipment

Suggested Extrusion Conditions

Extruder L/D:	20:1 (minimum)	Throat:	Water-cooled
Extruder L/D:	24:1 (preferred)	Zone 1:	370°F
Screw:	Barrier or Single Flight	Zone 2:	(188°C)
Compression Ratio:	2.7 to 3.5:1	Zone 3:	385°F
Die:	Smooth transition,	Zone 4:	(196°C)
	With >= 1/8 in. land	Head / Die:	390°F
	Die & Tip include angle: 22-35°		(199°C)
			390°F
			(199°C)
			395°F
			(202°C)

- (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 electrical properties tested on a 0.075 inch thick molded plaque.
- (4) All physical properties tested on a 0.030 inch thick extruded tape.



BombardierSMP 800C Toxicity**Maximum Concentrations (ppm)**

	Flaming	Non-flaming
CO	189	28
CO2	2777	606
NO2	Not Detected	Not Detected
SO2	Not Detected	Not Detected
HCl	Not Detected	Not Detected
HF	Not Detected	Not Detected
HBr	Not Detected	Not Detected
HCN	Not Detected	Not Detected

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