



TPE 5490

Thermoplastic Elastomer (TPE) Compound for Primary Pump Cable and Flexible Cord Insulation

Description

TPE 5490 is a natural, olefin-based thermoplastic elastomer (TPE) intended for wire and cable insulation and jacketing. It is designed to offer excellent low temperature flexibility and deformation resistance. **TPE 5490** offers good extrusion processing characteristics on either conventional polyethylene or PVC extrusion lines.

TPE 5490 is readily pigmented to a variety of colors using standard wire and cable color concentrates designed for thermoplastic or crosslinked polyolefins. UV weather resistance is obtainable by the addition of a suitable carbon black or UV additive.

Application

TPE 5490 is intended for pump cable, flexible cord insulation, and fixture applications. It is also suitable for use in 75°C wet locations.

Specifications

Cables manufactured using **TPE 5490** in accordance with standard industry practices should meet the following industry cable specifications:

- 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 410°F (210°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	0.890	g / cm ³	ASTM D 792
Tensile Strength	3700 (26)	psi (Mpa)	ASTM D 412
Ultimate Elongation	650	%	ASTM D 412
Heat Aging, 7 days at 136°C			
Tensile Strength Retention	>= 85	%	ASTM D 412
Ultimate Elongation Retention	>= 85	%	ASTM D 412
Durometer Hardness, Shore D	34	-	ASTM D 2240
Durometer Hardness, Shore A immediate ⁵	88	-	ASTM D 2240
Durometer Hardness, Shore A 15s delay ⁶	85	-	ASTM D 2240
Brittleness Temperature	< -50 (< -45)	°F (°C)	ASTM D 746
Heat Deformation at 150°C	<= 30	%	UL 1581

Electrical Properties	Typical Value ⁽²⁾⁽³⁾	Unit	Test Method ⁽¹⁾
Dielectric Constant (60 Hz)	2.2	-	ASTM D 150
Dielectric Strength	660	V / Mil	ASTM D 149

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 (190°C)
Screw:	Barrier or Single Flight	Zone 2:	390°F (200°C)
Compression Ratio:	2.7 to 3.5:1	Zone 3:	400°F (205°C)
Die:	Smooth transition, With >= 1/8 in. land	Zone 4:	410°F (210°C)
	Die & Tip include angle: 22-35°	Head / Die:	410-450°F (210-230°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.

(5) Test methodology improved Durometer Hardness, Shore A immediate 88 Change Notice

(6) Test methodology improved Durometer Hardness, Shore A 15s delay 85 Change Notice

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