

Petrothene®

LR686001

High Density Polyethylene

Wire and Cable Grade

Melt Index 0.80 Density 0.948

Applications

PETROTHENE LR686001 is designed for use as insulation for foam/skin telephone singles, and is a natural, expandable, high density polyethylene compound containing a chemical blowing agent. LR686001 is highly stabilized to ensure OIT retention and thermal stability during processing, oven aging, and in pedestal testing. This product contains a processing aid and a metal deactivator to prevent degradation from copper while the cable is in service. Manufacturing advancements have improved dispersion of the chemical blowing agent in LR686001, resulting in superior cellular structure in the expanded insulation. The improved cellular structure may result in decreased spark failures and increased foaming level.

Processing Techniques

LR686001, like other thermoplastic polyolefin compounds, can be extruded as wire and cable insulation using a conventional extruder. Below are suggested extrusion conditions for LR686001. These conditions are intended as general guidelines, not optimum values, since manufacturing variables such as extruder type and size have an effect on processing of thermoplastic compounds.

Suggested General Extrusion Conditions

Extruder Zone	Temperature Range	Extruder Zone	Temperature Range
Feed	300°-325°F (149°-163°C)	Adapter	410°-420°F (246°-260°C)
Zone 2	350°-400°F (177°-204°C)	Die	410°-420°F (246°-260°C)
Zone 3	400°-415°F (204°-213°C)	Melt Temperature	410°-420°F (246°-260°C)
Zone 4-X	410°-420°F (246°-260°C)	Wire Preheat	270°-280°F (132°-138°C)

Industry Specifications

LR686001 meets the requirements of the following: ASTM D 1248, Type III, Class A, Category 4, Grade E9; Federal LP 390C, Type II, Class H, Category 4, Grade 1; REA PE-89.

Typical Properties

Property*	Nominal Value	Units	ASTM Test Method
Melt Index	0.80	g/10 min.	D 1238
Density	0.948	g/cc	D 1505
Low Temperature Brittleness, F ₅₀	<-76	°C	D 746
Tensile Strength @ Break	3,600 (24.8)	psi (MPa)	D 638
Tensile Stress @ Yield	3,000 (20.7)	psi (MPa)	D 638
Elongation @ Break	800	%	D 638
Dielectric Constant @ 1 MHz	2.35		D 1531
Dissipation Factor @ 1 MHz	0.00026		D 1531
Volume Resistivity	1 x 10 ₂₀	ohm-cm	D 991

* All properties, except melt index, were determined from unfoamed, compression-molded plaques.

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