Technical Information

AXELERON™ CS L-3364 NT CPD
High Density Polyethylene Solid Insulation Compound

Overview

AXELERON™ CS L-3364 NT CPD is a high-molecular weight, high-density polyethylene insulation compound ("CPD") specifically formulated to provide excellent oxidative stability, toughness, and abrasion resistance. It provides superior long term aging performance, especially in the more demanding Power over Ethernet (PoE) and grease-filled cable applications while providing excellent environmental and thermal stress-cracking resistance. In addition, AXELERON™ CS L-3364 NT CPD is designed for excellent processability for high-speed wire insulating extrusion processes.

AXELERON™ CS L-3364 NT CPD provides excellent performance across the full range of network data cable and telephone insulation applications. AXELERON™ CS L-3364 NT CPD is optimized to meet rigorous Telcordia requirements, as well as all major international age testing standards and specifications for use as both solid and foam/skin insulation. There is also considerable AXELERON™ CS L-3364 NT CPD use in a wide variety of other twisted pair, coaxial, hybrid data and power cable designs.

Specifications

AXELERON™ CS L-3364 NT CPD meets the following raw material specifications:

- ASTM D 1248 Type III Category A-4, Grade E8 and E9
- Federal LP-390 C, II-H, Grades 1 and 2, Category 4

Network & industrial ethernet data cable and telephone wire insulated with AXELERON™ CS L-3364 NT CPD, using sound commercial extrusion practices, should meet the cable specifications including but not limited to:

- ICEA S-116-732 Category 6 & 6A, ANSI/NEMA WC-66 Category 3-6A
- ANSI/TIA-568-C.2 Category 5E, 6, & 6A
- IEEE Specification: IEEE 802.3bt Type 1, Type 2, Type 3, Type 4
- REA PE 39 "Filled Telephone Cable" & REA PE 89 "Filled Telephone Cable with Expanded Insulation"
- Telcordia GR-421-CORE, Issue 1; 3 "Generic Requirements for Metallic Telecommunications Cables"
- ICEA S-84-608 "Telecommunications Cable; Filled, Polyolefin Insulated, Copper Conductor - Technical Requirements"

Physical	Nominal Value	(English)	Nominal Value	(SI)	Test Method
Density	0.945	g/cm³	0.945	g/cm³	ASTM D792
Melt Mass-Flow Rate (190°C/2.16 kg)	0.80	g/10 min	0.80	g/10 min	ASTM D1238
Environmental Stress-Cracking Resistance (ESCR)					ASTM D1693
122°F (50°C), 100% Igepal, F0	> 48.0	hr	> 48.0	hr	
Mechanical	**Nominal Value**	**(English)**	**Nominal Value**	**(SI)**	**Test Method**
Tensile Strength	3400	psi	23.4	MPa	ASTM D638
Tensile Elongation (Break)	500	%	500	%	ASTM D638
Thermal	**Nominal Value**	**(English)**	**Nominal Value**	**(SI)**	**Test Method**
Brittleness Temperature [1]	-105	°F	-76.0	°C	ASTM D746
Oxidation Induction Time [2] (392°F (200°C))	170	min	170	min	ASTM D4565
Thermal Stress Crack Resistance - F0	> 96	hr	> 96	hr	ASTM D2951
Aging	**Nominal Value**	**(English)**	**Nominal Value**	**(SI)**	**Test Method**
Retention of Tensile Elongation					ASTM D638
48 hrs : 212°F (100°C)	90	%	90	%	
4800 hrs : 239°F (115°C) [3]	> 95	%	> 95	%	
Retention of Tensile Strength					ASTM D638
48 hrs : 212°F (100°C)	90	%	90	%	
4800 hrs : 239°F (115°C) [3]	> 95	%	> 95	%	
Electrical	**Nominal Value**	**(English)**	**Nominal Value**	**(SI)**	**Test Method**
Volume Resistivity (73°F (23°C))	> 1.0E+15	ohms·cm	> 1.0E+15	ohms·cm	ASTM D257
Dielectric Constant (1 MHz)	2.32		2.32		ASTM D1531
Dissipation Factor [4] (1 MHz)	6.0E-5		6.0E-5		ASTM D1531

Extrusion	Nominal Value (English)	Nominal Value (SI)
Melt Temperature	425 to 500 °F	218 to 260 °C

Extrusion Notes

AXELERON™ CS L-3364 NT CPD provides excellent surface finish and good output rates over a broad range of extrusion conditions. AXELERON™ CS L-3364 NT CPD is typically extruded at melt discharge temperatures ranging from 425 to 500°F (220 to 260°C) using conductor preheats ranging from 230 to 290°F (110 to 140°C). Specific extrusion conditions can be recommended only when the application, processing speed and processing equipment details are known.

Notes

These are typical properties only and are not to be construed as specifications. Users should confirm results by their own tests.

[1] F0

[2] Aluminum pan O/T testing of 0.25 mm film samples 80°C ETPR cable type filler was used.

[3] Tested on extruded wire 22AWG copper conductor with 0.021 inch wall thickness

[4] After 14 days Water Immersion at 23°C (73°F)