AXELERON™ FO 8864 NT CPD
Colorable Medium Density Polyethylene Compound for Cable Jacketing

Overview

AXELERON™ FO 8864 NT CPD is a high molecular weight medium-density polyethylene compound ("CPD") recommended for fiber optic and conventional metallic conductor cable jacketing applications. The compound can be colored and has very good extrusion processability. AXELERON™ FO 8864 NT CPD provides a tough cable jacketing with excellent environmental stress-cracking resistance. The compound incorporates UV stabilization to improve resistance to direct sunlight exposure.

AXELERON™ FO 8864 NT CPD provides excellent low temperature optic signal attenuation performance in fiber optic cable jacketing applications. This is achieved by the combination of reduced extrusion shrinkback stress with optimized low temperature tensile modulus properties.

Specifications

AXELERON™ FO 8864 NT CPD meets the following raw material specifications:

- ASTM D 1248: Type II, Class A, Category 4, Grades E9 and J4
- Federal LP-390C: Type II, Class M, Grade 1, Category 4

Additive

- UV Stabilizer

Physical	Nominal Value	(English)	Nominal Value	(SI)	Test Method
Density	0.932	g/cm³	0.932	g/cm³	ASTM D1505
Melt Mass-Flow Rate (190°C/2.16 kg)	0.65	g/10 min	0.65	g/10 min	ASTM D1238
Environmental Stress-Cracking Resistance (ESCR)					ASTM D1693
10% Igepal, F0	> 500	hr	> 500	hr	
Mechanical	**Nominal Value**	**(English)**	**Nominal Value**	**(SI)**	**Test Method**
Tensile Modulus - 1% Secant [1]					ASTM D638
-40°F (-40°C)	150000	psi	1030	MPa	
-4°F (-20°C)	115000	psi	793	MPa	
32°F (0°C)	80100	psi	552	MPa	
68°F (20°C)	45000	psi	310	MPa	
104°F (40°C)	29900	psi	206	MPa	
140°F (60°C)	18000	psi	124	MPa	
Tensile Strength [2]	4000	psi	27.6	MPa	ASTM D638
Tensile Elongation [2] (Break)	900	%	900	%	ASTM D638
Thermal	**Nominal Value**	**(English)**	**Nominal Value**	**(SI)**	**Test Method**
Brittleness Temperature [3]					
--	< -112	°F	< -80.0	°C	ASTM D746
--	< -76.0	°F	< -60.0	°C	Dow Method
CLTE - Flow [4]					ASTM D696
-40°F (-40°C)	5.6E-5	in/in/°F	1.0E-4	cm/cm/°C	
-4°F (-20°C)	7.8E-5	in/in/°F	1.4E-4	cm/cm/°C	
32°F (0°C)	7.8E-5	in/in/°F	1.4E-4	cm/cm/°C	
68°F (20°C)	1.1E-4	in/in/°F	2.0E-4	cm/cm/°C	
104°F (40°C)	1.3E-4	in/in/°F	2.4E-4	cm/cm/°C	
140°F (60°C)	1.6E-4	in/in/°F	2.8E-4	cm/cm/°C	
Electrical	**Nominal Value**	**(English)**	**Nominal Value**	**(SI)**	**Test Method**
Dielectric Strength	450	V/mil	18	kV/mm	ASTM D149
Dielectric Constant (1 MHz)	2.40		2.40		ASTM D1531
Dissipation Factor (1 MHz)	2.0E-4		2.0E-4		ASTM D1531

Extrusion	Nominal Value	(English)	Nominal Value	(SI)
Melt Temperature	446	°F	230	°C

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Extrusion Notes

AXELERON™ FO 8864 NT CPD has good extrusion processing latitude. High, stable output rates and moderate melt temperatures and pressures are obtainable with both polyethylene barrier and metering type extruder screws. Typical extrusion conditions are listed below; the exact conditions will depend upon the equipment used and the application.

Extruder

- Screw Type: PE Metering
- Screw LD: 18:1 to 24:1
- Compression Ratio: 2.5:1 to 3.0:1
- Screen Pack: 20/40/60/20 mesh

Temperature Profile

- Hopper: Water Cooling
- Feed Zone: 300°F (150°C)
- Center Zones: 440°F (225°C)
- Metering Zone: 440°F (225°C)
- Head: 440°F (225°C)
- Die: 440°F (225°C)
- Melt Temperature: 450°F (230°C)

AXELERON™ FO 8864 NT CPD cable jacketing can be applied with either pressure or sleeving (tube-on) type extrusion tooling. With tube-on extrusion, a minimum tubing tip diameter and a 2:1 drawdown ratio is recommended. If necessary, a higher drawdown ratio can be used to increase jacket tightness.

Notes

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

[1] Reduced testing speed of 0.10 in/min (2.5 mm/min) with an initial 1.50 in (38mm) jaw separation. Modulus data will vary with testing speed. Unless otherwise noted, amples are tested in accordance with ASTM D 1248, "Polyethylene Plastics Molding and Extrusion Materials."

[2] Type IV, 2.0 in/min (50 mm/min)

[3] Notched, F20

[4] COE data generated on Dupont 942 Thermomechanical Analyzer.

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