AXELERON™ FO 8864 BK CPD

Black Medium Density Polyethylene Compound for Cable Jacketing

The Dow Chemical Company

Message:

Dow AXELERON™FO 8864 BK CPD is a high molecular weight, linear, medium density, black polyethylene material, which is developed for the application of optical fiber and ordinary metal conductor cable sheath. This material has very good processing characteristics and can be made into a very strong cable sheath. Dow's AXELERON™FO 8864 BK CPD also has excellent environmental stress cracking resistance, weather resistance and thermal oxidation degradation resistance.

Dow AXELERON™FO 8864 BK CPD provides excellent low temperature optical signal attenuation performance in the application field of optical fiber cable sheath. The material combines reduced extrusion retraction stress with excellent tensile modulus. Therefore, the contraction force exerted by the cable sheath on the fiber optic cable during the temperature cycle change is minimized.

Specifications

Dow AXELERON™FO 8864 BK CPD meets the requirements of the following raw material specifications:

ASTM D 1248: Type II, Class C, Class 4, E9 and J4

Federal LP-390C: Type III, M, 2, 3, 4

REA PE 39 and 89 (raw material section)

General Information	
Uses	Fiber Optic Cable Jacketing Cable sheath Wire and cable applications Optical fiber cable
Agency Ratings	ASTM D 1248, II, Class C, Cat. 4 FED L-P-390C, Type III, Class M, Category 4, Grade 3 REA PE-39 REA PE-89
Forms	Particle

Physical	Nominal Value	Unit	Test Method
Specific Gravity	0.941	g/cm³	ASTM D792
Melt Mass-Flow Rate (MFR) (190°C/2.16 kg)	0.70	g/10 min	ASTM D1238
Environmental Stress-Cracking Resistance (10% Igepal, F0)	> 1000	hr	ASTM D1693
Carbon Black Content	2.6	%	ASTM D1603
Absorption Coefficient - (kAB/m)	> 400		ASTM D3349

Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus - 1% Secant [1]			ASTM D638
-40°C	1030	MPa	ASTM D638
-20°C	793	MPa	ASTM D638
0°C	552	MPa	ASTM D638
20°C	310	MPa	ASTM D638
40°C	206	MPa	ASTM D638

60°C	124	MPa	ASTM D638
Tensile Strength [2]	28.3	MPa	ASTM D638
Tensile Elongation [3] (Break)	800	%	ASTM D638
Thermal	**Nominal Value**	**Unit**	**Test Method**
Brittleness Temperature			ASTM D746
-- [4]	< -100	°C	ASTM D746
-- [5]	-65.0	°C	ASTM D746
CLTE - Flow [6]			ASTM D696
-40°C	1.0E-4	cm/cm/°C	ASTM D696
-20°C	1.4E-4	cm/cm/°C	ASTM D696
0°C	1.4E-4	cm/cm/°C	ASTM D696
20°C	2.0E-4	cm/cm/°C	ASTM D696
40°C	2.4E-4	cm/cm/°C	ASTM D696
60°C	2.8E-4	cm/cm/°C	ASTM D696
Electrical	**Nominal Value**	**Unit**	**Test Method**
Dielectric Strength	20	kV/mm	ASTM D149
Dielectric Constant	2.50		ASTM D1531
Dissipation Factor	3.0E-4		ASTM D1531
Extrusion	**Nominal Value**	**Unit**	
Melt Temperature	232	°C	

Extrusion instructions

AXELERON™ FO 8864 BK 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 BK 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.

NOTE

1.	Reduced testing speed of 0.10 inch/min (2.5 mm/min) with an initial 1.50 inch (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 4, 50mm/min

3.	Type 4, 50mm/min
4.	Notched, F20
5.	Notched, F50
6.	COE data generated on Dupont 942 Thermomechanical Analyzer.

Recommended distributors for this material

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