



AXELERON™ CC B-3487 NT CPD

High Density Polyethylene Cellular Insulation Compound

Overview

AXELERON™ CC B-3487 NT CPD is a high-density polyethylene cellular compound ("CPD") designed for use in foam/skin telephone wire and other cellular insulation applications. This compound incorporates a chemical blowing agent that provides up to 50% cellular expansion through temperature-controlled extrusion. AXELERON™ CC B-3487 NT CPD features a unique antioxidant system that provides superior long-term insulation aging performance in grease-filled cable applications.

The compound is recommended for hot climate applications and, using sound commercial extrusion practices, should meet the stringent insulation age testing requirements of the Telcordia GR 421 CORE and the ICEA S-84-608 specifications. AXELERON™ CC B-3487 NT CPD provides excellent extrusion processing characteristics and yields an insulation product with superior mechanical and electrical performance.

Additive

- Antioxidant

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density ¹	0.945 g/cm ³	0.945 g/cm ³	ASTM D792
Melt Mass-Flow Rate (190°C/2.16 kg)	0.80 g/10 min	0.80 g/10 min	ASTM D1238
Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Strength	3200 psi	22.1 MPa	ASTM D638
Tensile Elongation (Break)	700 %	700 %	ASTM D638
Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Oxidation Induction Time ² (428°F (220°C))	47 min	47 min	ASTM D3895
Thermal Stress Crack Resistance	> 96 hr	> 96 hr	ASTM D2951
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 (1 MHz)	2.34	2.34	ASTM D1531
Dissipation Factor ¹ (1 MHz)	3.0E-4	3.0E-4	ASTM D1531

Extrusion Notes

AXELERON™ CC B-3487 NT CPD provides very good cellular extrusion processing stability and excellent cellular insulation quality. Extrusion of chemically foamed cellular insulations is a delicate process that requires precise extruder temperature control for the best results. Typical high-speed production lines incorporate a computer control system to maintain on-line diameter and on-line capacitance measurements at target levels.

Properly designed polyethylene metering or double flighted barrier screws are used with good success for cellular extrusion. Typical extruder barrel temperatures are:

- Feed zone: 340°F (170°C)
- Transition zone: 370°F (185°C)
- Metering zone: 400°F (205 °C)
- Crosshead and Die 400°F (205 °C)

Metering and crosshead zone temperatures will need to be fine tuned to a $\pm 0.5^\circ\text{C}$ tolerance to provide the target cellular expansion for a given product/operating condition on a given production line. It is recommended that optimized extrusion conditions be developed and standardized for each insulation product on each production line.

For foam/skin extrusion, double tapered short land polyethylene dies that are slightly undersized (-0.02mm/-0.001 inch) versus the finished insulation diameter are recommended. A conductor wire preheat of >266°F (>130°C) is needed to provide good insulation tensile elongation performance. Marginally low preheat will provide good initial but poor aged insulation elongation performance.

Notes

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

¹ Solid

² Aluminum Pan

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