



Dow ENDURANCE™ HFDA-0580 BK

Crosslinkable Semiconductive Shielding Compound

Overview

DOW ENDURANCE™ HFDA-0580 BK is a specially formulated semiconductive, vulcanizable compound designed for use as an extruded strand conductor shield and bonded insulation shield applications in medium voltage crosslinked polyethylene insulated cables. (1) DOW ENDURANCE™ HFDA-0580 BK has stable volume resistivity characteristics at elevated temperatures and is formulated with a polymer system that assists in obtaining minimum shrink back on aluminum conductors, especially solid conductors. DOW ENDURANCE™ HFDA-0580 BK is not recommended for use with bare copper conductors.

Specifications

DOW ENDURANCE™ HFDA-0580 BK is designed for use in power distribution cables. Cables with conductor and insulation shielding of DOW ENDURANCE™ HFDA-0580 BK, prepared using sound commercial fabrication practice, would be expected to meet the following specifications:

- ANSI/ICEA: S-94-649, S-97-682, S-93-639 / NEMA WC74
- AEIC: CS8
- IEC: 60502

(1) DOW ENDURANCE™ HFDA-0580 BK is recommended for use in conjunction with DOW cross-linked polyethylene and tree-retardant cross-linked polyethylene compounds. For other polymer insulations such as EPR and EPDM's the user is cautioned to establish the utility of DOW ENDURANCE™ HFDA-0580 BK with each formulation.

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density	1.12 g/cm ³	1.12 g/cm ³	ASTM D792
Environmental Stress-Cracking Resistance (ESCR)			ASTM D1693
100% Igepal, F0	> 504 hr	> 504 hr	
Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Strength	2400 psi	16.5 MPa	ASTM D638
Tensile Elongation (Break)	260 %	260 %	ASTM D638
Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Brittleness Temperature	-40.0 °F	-40.0 °C	ASTM D746
Aging	Nominal Value (English)	Nominal Value (SI)	Test Method
Retention of Tensile Elongation - 1 week			ASTM D638
302°F (150°C)	90 %	90 %	
Retention of Tensile Strength - 1 week			ASTM D638
302°F (150°C)	98 %	98 %	
Electrical	Nominal Value (English)	Nominal Value (SI)	Test Method
Volume Resistivity			ASTM D991
73°F (23°C)	8.0 ohms-cm	8.0 ohms-cm	
194°F (90°C)	15 ohms-cm	15 ohms-cm	
266°F (130°C)	12 ohms-cm	12 ohms-cm	

Additional Information

Nominal property values above represent tests on molded, stress-relieved slabs. Cure times were 15 minutes at 175°C.

Storage

- The environment or conditions of storage greatly influences the recommended storage time. Storage should be in accordance with good manufacturing practices. If proper warehousing and storage temperatures [dry conditions, between 50°F and 86°F (10°C and 30°C) in temperature] are utilized, this product may be stored by the customer for up to one year. It is recommended that the practice of using the product on a first-in / first-out basis be established. Storage under extreme conditions may affect the quality, processing, or performance of the product.

Extrusion	Nominal Value (English)	Nominal Value (SI)
Drying Temperature	140 °F	60 °C
Drying Time	< 6.0 hr	< 6.0 hr
Melt Temperature	250 to 284 °F	121 to 140 °C



Extrusion Notes

DOW ENDURANCE™ HFDA-0580 BK provides excellent surface finish and outstanding output rates over a broad range of conditions. For optimum results, use melt extrusion temperatures in the suggested range of 250 to 285°F (121 to 140°C) to avoid pre-cure or scorch. Extruder barrel settings of 110°C (230°F) are suggested as a starting point while learning to process DOW ENDURANCE™ HFDA-0580 BK. Specific machine settings will depend on the extruder design and must be established through conventional practices. Dehumidified hopper drying at 140°F (60°C) for up to 6 hours may be employed to remove moisture prior to extrusion. DOW ENDURANCE™ HFDA-0580 BK can be extruded directly over aluminum conductors, but with copper conductors the outer strand layer should be tinned first.

Notes

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

