Dow ENDURANCE™ HFDA-0580 BK

Crosslinkable Semiconductive Shielding Compound

The Dow Chemical Company

Message:

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.

General Information			
Uses	Medium Voltage Semiconductive Shield Semiconductive Shield Underground cable Cable guard Wire and cable applications		
Agency Ratings	AEIC CS8 ICEA S-93-639 ICEA S-94-649 ICEA S-97-682 IEC 60502 NEMA WC-74		
Forms	Particle		
Physical	**Nominal Value**	**Unit**	**Test Method**
Specific Gravity	1.12	g/cm³	ASTM D792
Environmental Stress-Cracking Resistance (100% Igepal, F0)	> 504	hr	ASTM D1693
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Strength	16.5	MPa	ASTM D638
Tensile Elongation (Break)	260	%	ASTM D638
Aging	**Nominal Value**	**Unit**	**Test Method**
Tensile strength retention-1 week (150°C)	98	%	ASTM D638
Elongation retention rate-1 week (150°C)	90	%	ASTM D638
Thermal	**Nominal Value**	**Unit**	**Test Method**

Brittleness Temperature	-40.0	°C	ASTM D746

Electrical	Nominal Value	Unit	Test Method
Volume Resistivity			ASTM D991
23°C	8.0	ohms·cm	ASTM D991
90°C	15	ohms·cm	ASTM D991
130°C	12	ohms·cm	ASTM D991

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	Unit
Drying Temperature	60.0	°C
Drying Time	< 6.0	hr
Melt Temperature	121 - 140	°C

Extrusion instructions

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.

Recommended distributors for this material

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