Dow ENDURANCE™ HFDB-0586 BK

Crosslinkable Semiconductive Shielding Compound

The Dow Chemical Company

Message:

DOW ENDURANCE™ HFDB-0586 BK is a specially formulated semiconductive, vulcanizable compound designed for conductor shield and bonded insulation shield applications in medium and high voltage crosslinked polyethylene insulated cables.(1) DOW ENDURANCE™ HFDB-0586 BK has stable volume resistivity characteristics at elevated temperatures and is formulated with a polymer system that has demonstrated compatibility with copper and aluminum conductors.
Specifications
DOW ENDURANCE™ HFDB-0586 BK is designed for use in power distribution cables. Cables with conductor and insulation shielding of DOW ENDURANCE™ HFDB-0586 BK, prepared using sound commercial fabrication practice, would be expected to meet the following specifications:
AEIC: CS8, CS9
BS: 6622
CEA: WCWG-01, WCWG-02
CSA: C68.2, C68.3
DIN: VDE 0276, VDE 0263
Edf: HN-33-S-23, HN-33-S-52
ESI: 09-14
HD: 620 S1
ICEA: S-94-649, S-66-524 (NEMA WC7)
IEC: 60502, 60840
UL: 1072
(1) DOW ENDURANCE™ HFDB-0586 BK is recommended for use in conjunction with DOW cross-linked polyethylene and tree-retardant cross-linked polyethylene compounds. For other polymer insulation such as EPR and EPDM's, the user is cautioned to establish the utility of DOW ENDURANCE™ HFDB-0586 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
	AEIC CS9
	BS 6622
	EDF HN 33-S-23
	EDF HN 33-S-52
	HD 620 S1
	ICEA S-66-524
	ICEA S-94-649
	IEC 60502
	IEC 60840
	NEMA WC-7
	UL 1072
	VDE 0263
	VDE 0273

Forms	Particle		
Physical	**Nominal Value**	**Unit**	**Test Method**
Density	1.10	g/cm³	ASTM D1505
Environmental Stress-Cracking Resistance (100% Igepal, F0)	> 504	hr	ASTM D1693
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Strength	15.9	MPa	ASTM D638
Tensile Elongation (Break)	300	%	ASTM D638
Aging	**Nominal Value**	**Unit**	**Test Method**
Tensile strength retention-1 week (150°C)	90	%	ASTM D638
Elongation retention rate-1 week (150°C)	95	%	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	6.0	ohms·cm	ASTM D991
90°C	20	ohms·cm	ASTM D991
130°C	15	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 - 70.0	°C
Drying Time	< 6.0	hr
Melt Temperature	121 - 140	°C

Extrusion instructions

DOW ENDURANCE™ HFDB-0586 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 230°F (110°C) are suggested as a starting point while learning to process DOW ENDURANCE™ HFDB-0586 BK. Specific machine settings will depend on the extruder design and must be established through conventional practices. The curing temperature should be carefully controlled, and the maximum surface temperature in the CV tube should not exceed 572°F (300°C) for optimum results.Dehumidified air hopper drying at 140-160°F (60-70°C) for up to six hours may be employed to remove residual moisture prior to extrusion. Drying is not necessary for DOW ENDURANCE™ HFDB-0586 BK due to the lower moisture absorption characteristics relative to conventional semiconductive products.

Recommended distributors for this material

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