Dow ENDURANCE™ HFDB-0586 BK S

Crosslinkable Semiconductive Shielding Compound with Superior Smoothness

The Dow Chemical Company

Message:

DOW ENDURANCE™ HFDB-0586 BK S 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 S has stable volume resistivity characteristics at elevated temperatures and is formulated with a polymer system that has demonstrated compatibility with copper and aluminum conductors. DOW ENDURANCE™HFDB-0586 BK S meets stringent requirements for product smoothness. As a conductor shield, it is designed for use up to 150 kV. As an insulation shield, it is designed for use up to 230 kV.,
Specifications
DOW ENDURANCE™ HFDB-0586 BK S is designed for use in power distribution and transmission cables. Cables with conductor and insulation shielding of DOW ENDURANCE™ HFDB-0586 BK S, prepared using sound commercial fabrication practice, would be expected to meet the following specifications:
AEIC: CS8, CS9
CEA: WCWG-01, WCWG-02
CSA: C68.2, C68.3
IEC: 60502, 60840, 62067
ICEA: S-108-720; S-94-649; S-97-682, S-93-639
DIN: VDE 0276-632, 0276-620
BS: 6622
Edf: HN-33-S-23, HN-33-S-52
ESI: 09-14
CENELEC: HD620 S1, HD632 S1
ISO 1872-E/BA, KHXY, 23-G200, C40
NF: C33-223, C33-226
UTE: C 33-223
UL: 1072
GB/T 11017 and GB/T 18890
(1) DOW ENDURANCE™ HFDB-0586 BK S 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 S with each formulation.

General Information	
Uses	High Voltage Semiconductive Shield
	Semiconductive Shield
	Underground cable
	Cable guard
	Wire and cable applications
Agency Ratings	AEIC CS8
	AEIC CS9
	BS 6622
	DIN VDE 0276-620
	DIN VDE 0276-632
	EDF HN 33-S-23
	EDF HN 33-S-52
	HD 620 S1
	HD 632 S1
	ICEA S-93-639

ICEA S-94-649

ICEA S-97-682

IEC 60502

IEC 60840

IEC 62067

ISO 1872 E/BA KHXY 23G200 C40

NF C 33-223

NF C 33-226

UL 1072

UTE C 33-223

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 - 70	°C
Drying Time	< 6.0	hr
Melt Temperature	121 - 140	°C

Extrusion instructions

DOW ENDURANCE™ HFDB-0586 BK S 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™ HFDB-0586 BK S. Specific machine settings will depend on the extruder design and must be established through conventional practices.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 S due to the lower moisture absorption characteristics relative to conventional semiconductive products.

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