



Dow ENDURANCE™ HFDB-0586 BK S

Crosslinkable Semiconductive Shielding Compound with Superior Smoothness

Overview

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DOW ENDURANCE™ HFDB-0586 BK S is a specially formulated semiconductive, vulcanizable compound designed for use as an extruded conductor shield and bonded insulation shield applications in power cables, especially developed for use in high voltage cables.(1) DOW ENDURANCE™ HFDB-0586 BK S meets stringent requirements for product smoothness. 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 offers outstanding extrusion properties with low melt pressures and low temperature generation that result in outstanding scorch resistance and outstanding smoothness under a wide processing window.

(1) DOW ENDURANCE™ HFDB-0586 BK S is recommended for use in conjunction with DOW cross-linked polyethylene and tree-retardant cross-linked polyethylene compound. For other polymer insulations, the user is cautioned to establish the utility of DOW ENDURANCE™ HFDB-0586 BK S.

Applications

DOW ENDURANCE™ HFDB-0586 BK S has been designed for semiconductive applications in power distribution and transmission cables for cable rated up to 230 kV. It can be used as inner and outer semiconductive layer for bonded cable applications and as inner semiconductive layer for strippable cable constructions. Contact your Dow representative for further recommendations.

Specifications

DOW ENDURANCE™ HFDB-0586 BK S is designed for use in power distribution and transmission cables. Power cables with conductor and/or insulation shielding made of DOW ENDURANCE™ HFDB-0586 BK S, prepared using sound, commercial fabrication practice, would be expected to meet the following cable specification(s):

- IEC: 60502-2, 60840 and 62067
- HD: 620 S2 and 632 S2
- BS: 6622
- DIN: VDE 0273 and 0263
- Edf: HN-33-S-23 and HN-33-S-52
- AEIC: CS8, CS9
- ICEA: S-94-649, S-97-682, S-113-684, S-66-524 (NEMA WC7), S-108-720
- GB/T 12706, GB/T 11017, GB/T 18890

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density ¹	1.10 g/cm ³	1.10 g/cm ³	ASTM D1505
Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Strength	2300 psi	15.9 MPa	ASTM D638
Tensile Elongation (Break)	300 %	300 %	ASTM D638
Aging	Nominal Value (English)	Nominal Value (SI)	Test Method
Retention of Tensile Elongation - 1 week 302°F (150°C)	90 %	90 %	ASTM D638
Retention of Tensile Strength - 1 week 302°F (150°C)	90 %	90 %	ASTM D638
Electrical	Nominal Value (English)	Nominal Value (SI)	Test Method
Volume Resistivity			ASTM D991
73°F (23°C)	6.0 ohms·cm	6.0 ohms·cm	
194°F (90°C)	20 ohms·cm	20 ohms·cm	
266°F (130°C)	15 ohms·cm	15 ohms·cm	



Additional Information

Smoothness Requirements

DOW ENDURANCE™ HFDB-0586 BK S has been formulated and manufactured to deliver outstanding surface smoothness exceeding industry requirements. Extruded tapes are scanned by an automatic inspection system in a clean room. The tape smoothness quality data is managed using an acceptance sampling procedure, which ensures that the product meets or exceeds Dow S grade smoothness standard.

Processing Techniques

DOW ENDURANCE™ HFDB-0586 BK S provides outstanding surface finish and outstanding output rates over a broad range of conditions. For optimum results, use melt extrusion temperatures in the suggested range of 121 to 140°C (250 to 285°F) 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, please contact your Dow technical representative for more details. Dehumidified air hopper drying at 60-70°C (140-160°F) for up to six hours may be employed to remove residual moisture prior to extrusion.

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 10°C and 30°C in temperature) are used, 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.

Packaging

DOW ENDURANCE™ HFDB-0586 BK S can be delivered in different packaging types dependent on the specific materials handling needs. These packaging types could be in top and bottom unloading UNICLEAN™ octabins as well as top and bottom unloading octabins. Please consult with your local Dow sales representative to discuss your packaging needs.

Notes

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

¹ 23°C

