Dow ENDURANCE™ HFDA-0581 BK
Crosslinkable Semiconductive Shielding Compound

Overview

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DOW ENDURANCE™ HFDA-0581 BK is a specially formulated semiconductive, vulcanizable compound designed for use as an extruded conductor shield and bonded insulation shield applications in power cables.(1) DOW ENDURANCE ™ HFDA-0581 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. DOW ENDURANCE™ HFDA-0581 BK offers outstanding extrusion properties with low melt pressures and low temperature generation that result in outstanding scorch resistance under a wide processing window.

(1) DOW ENDURANCE™ HFDA-0581 BK is recommended for use in conjunction with DOW cross-linked polyethylene and tree-retardant cross-linked polyethylene compound. For other polymer insulations as well as EPR and EPDM the user is cautioned to establish the utility of DOW ENDURANCE™ HFDA-0581 BK with each formulation.

Applications

DOW ENDURANCE™ HFDA-0581 BK has been designed for semiconductive applications in power distribution and transmission cables for cables rated up to 150 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™ HFDA-0581 BK is designed for use in power distribution and transmission cables. Power cables with conductor and insulation shielding made of DOW ENDURANCE™ HFDA-0581 BK, prepared using sound, commercial fabrication practice, would be expected to meet the following cable specification(s):

- IEC: 60502-2 and 60840
- 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

Physical	Nominal Value	(English)	Nominal Value	(SI)	Test Method
Density [1]	1.11	g/cm³	1.11	g/cm³	ASTM D792
Mechanical	**Nominal Value**	**(English)**	**Nominal Value**	**(SI)**	**Test Method**
Tensile Strength	2400	psi	16.5	MPa	ASTM D638
Tensile Elongation (Break)	200	%	200	%	ASTM D638
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)	90	%	90	%	
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	

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Additional Information

Smoothness Requirements

DOW ENDURANCE™ HFDA-0581 BK has been formulated and manufactured to deliver surface smoothness meeting 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 smoothness standard.

Processing Techniques

DOW ENDURANCE™ HFDA-0581 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 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™ HFDA-0581 BK. 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

DOWENDURANCE™ HFDA-0581 BK 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

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Additional Information

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