

Dow ENDURANCE™ HFDA-0581 BK

Crosslinkable Semiconductive Shielding Compound

The Dow Chemical Company

Message:

DOW ENDURANCE™ HFDA-0581 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-0581 BK has stable volume resistivity characteristics at elevated temperatures and is formulated with a polymer system that has demonstrated compatibility with copper conductor.

Specifications

DOW ENDURANCE™ HFDA-0581 BK is designed for use in power distribution cables. Cables with conductor and insulation shielding of DOW ENDURANCE™ HFDA-0581 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-0581 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-0581 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		
Forms	Particle		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.11	g/cm ³	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)	200	%	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)	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	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	115 - 140	°C

Extrusion instructions

DOW ENDURANCE™ HFDA-0581 BK provides excellent surface finish and outstanding output rates over a broad range of conditions. For optimum results, melt extrusion temperatures in the suggested range of 240 to 285°F (115 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-0581 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.

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