Dow ENDURANCE™ HFDK-0587 BK

Crosslinkable Semiconductive Shielding Compound

The Dow Chemical Company

Message:

DOW ENDURANCE™ HFDK-0587 BK is a crosslinkable semi-conductive compound based on an ethylene copolymer,
DOW ENDURANCE HFDK-0587 BK offers outstanding extrusion properties and allows high rates. Low pressure and temperature generation result in outstanding scorch resistance and excellent smoothness under a wide processing window.
Applications
DOW ENDURANCE HFDK-0587 BK is recommended as conductor and bonded insulation shielding for medium voltage XLPE power cables. DOW ENDURANCE HFDK-0587 is especially developed for high speed production in combination with DOW ENDURANCE™ HFDK-4202 EC and HFDK-4201 EC insulation compounds.
Specifications
Power cables with conductor and insulation shielding made of DOW ENDURANCE HFDK-0587 BK, prepared using sound, commercial fabrication practice, would be expected to meet the following cable specification(s):
IEC: 60502 and 60840
HD: 620 S1 and 632 S1
BS: 6622
DIN: VDE 0273 and 0263
Edf: HN-33-S-23 and HN-33-S-52
Consult the regulations for complete details.

General Information	
Uses	Semiconductive Shield
	Underground cable
	Cable guard
	Wire and cable applications
Agency Ratings	BS 6622
	EDF HN 33-S-23
	EDF HN 33-S-52
	HD 620 S1
	HD 632 S1
	IEC 60502
	IEC 60840
	VDE 0263
	VDE 0273
Forms	Particle

Physical	Nominal Value	Unit	Test Method
Density	1.10	g/cm³	ISO 1183
Moisture Content	400	ppm	DIN 53715
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Strength [1]	21.0	MPa	IEC 60811-1-1
Tensile Elongation (Break)	200	%	IEC 60811-1-1
Aging	**Nominal Value**	**Unit**	**Test Method**

Tensile strength retention-10 days(150°C)	90	%	IEC 60811-1-1
Elongation retention rate-10 days(150°C)	90	%	IEC 60811-1-1
Thermoset [2]			IEC 811-2-1
Elongation with Load : 200°C	40	%	IEC 811-2-1
Elongation without Load : 200°C	0.0	%	IEC 811-2-1

Electrical	Nominal Value	Unit	Test Method
Volume Resistivity			IEC 60093
23°C	10	ohms·cm	IEC 60093
90°C	30	ohms·cm	IEC 60093

Additional Information

Smoothness
DOW ENDURANCE HFDK-0587 BK meets the strict standards of smoothness established for a crosslinkable semi conductive shielding compound for power cable. Throughout the production process, the product is tested to ensure smoothness. Extruded tapes are scanned by an automatic inspection system in a clean room. The tape smoothness data is managed using an acceptance sampling plan, which ensures that material in each shipping container meets or exceeds the products smoothness standard. For DOW ENDURANCE HFDK-0587 BK the material smoothness standard has been designed to meet the stringent CENELEC industry specifications for semi conductive shielding materials on cable, also during high speed cable production.

Extrusion	Nominal Value	Unit
Drying Temperature	70.0	°C
Drying Time	4.0	hr
Melt Temperature	120 - 140	°C

Extrusion instructions

DOW ENDURANCE HFDK-0587 BK provides excellent surface finish and outstanding processing behavior over a broad range of conditions. For optimum results, melt extrusion temperatures in the range of 120 to 140°C are recommended. The following extruder barrel and die setting are recommended as a starting point while learning to process DOW ENDURANCE HFDK-0587 BK. Specific machine settings will depend on the extruder and die designs and must be established through conventional practices. In general a 20/80 mesh screen pack is advised.
For Maillefer extruders, a dual flight metering screw of 20-22/1, L/D and 2.0-2.5 compression ratio, running at 5-20 rpm is recommended.
For Troester extruders, if screw cooling is not used, or is used at relatively high settings of around 105°C, Z1 and Z2 should be run somewhat cooler than indicated below.
Recommended drying conditions are 70°C for 4 h.Default temperature settings for Maillefer 20 D Extruders with normal screw:
Feed Section: 25°C
Zone 1: NXW 80°C, MPW 60°C
Zone 2: 100°C
Zone 3: 110°C
Zone 4: 110°C
Zone 5-6 Clamp: 110°C
Zone 7-8 Connection: 120°C
Head/Die: 120°C
Screw Cooling: None
Hopper Cooling: None
Default temperature settings for Troester extruders:
Feed Section: 50 to 60°C
Zone 1: 110 to 115°C
Zone 2: 115°C
Zone 3: 115°C
Zone 4: 115°C
Zone 5-6 Clamp: 115 to 120°C
Zone 7-8 Connection: 120°C
Head/Die: 120°C
Screw Cooling: 85 to 105°C
Hopper Cooling: None

NOTE		
1.	25 mm/min	

2.	0.4 MPa

Recommended distributors for this material

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