Dow ENDURANCE™ HFDK-4201 SCsb

Low Density Polyethylene

The Dow Chemical Company

Message:

DOW ENDURANCE™ HFDK-4201 SC is a long-life, crosslinkable, low-density, polyethylene insulation compound of high purity developed specially for the insulation of High Voltage power cables. DOW ENDURANCE HFDK-4201 SCsb is equipped with a non-migrating stabilizer providing high thermal stability, long term storage stability, and optimum crosslinking behavior. This version of HFDK-4201SC delivers improved insurance against single contaminants via 100% pellet checking.
Applications:
DOW ENDURANCE HFDK-4201 SCsb is recommended for the insulation of high voltage submarine cables where long run length is of critical importance, as well as for high stress cable designs up to 10kV/mm.
Specifications:
Cables insulated with DOW ENDURANCE HFDK-4201 SCsb would be expected to meet the requirements in the following standards when processed using state-of-the-art cable manufacturing practices:
IEC: 62067, 60840
HD 632 S2
AEIC: CS9
ANSI/ICEA: 108-720-2004
GB/T 11017 , GB/Z 18890

General Information	
Agency Ratings	AEIC CS9
	HD 632 S2
	ICEA S-108-720
	IEC 60840
	IEC 62067

Forms	Particle		
Physical	**Nominal Value**	**Unit**	**Test Method**
Density [1]	0.921	g/cm³	ISO 1183
Melt Mass-Flow Rate (MFR) (130°C/2.16 kg)	0.30	g/10 min	ISO 1133
Moisture [2]		ppm	Internal method
Change in Tensile Properties - 10 days (150°C)		%	IEC 60811-1-1
Thermoset [3]			IEC 811-2-1
Elongation under Load : 200°C		%	IEC 811-2-1
Permanent Deformation : 200°C		%	IEC 811-2-1
Gottfert Elastograph - Torque	0.60	N·m	ISO 6502
Methanol Wash			Internal method
Insoluble Part		ppm	Internal method
Soluble Part		ppm	Internal method
Reaction Speed - t90	5.0	min	ISO 6502
Scorch Time - TS1 (140°C)	50.0	min	Internal method
Mechanical	**Nominal Value**	**Unit**	**Test Method**

Tensile Strength	20.0	MPa	IEC 60811-1-1
Tensile Elongation (Break)	500	%	IEC 60811-1-1
Electrical	**Nominal Value**	**Unit**	**Test Method**
Volume Resistivity	> 1.0E+16	ohms·cm	IEC 60093
Dielectric Strength	> 30	kV/mm	IEC 60243-1
Dielectric Constant (1 MHz)	< 2.30		IEC 60250
Dissipation Factor (50 Hz)	< 3.0E-4		IEC 60250
Additional Information	**Nominal Value**	**Unit**	**Test Method**

Cleanliness:
The cleanliness of DOW ENDURANCE HFDK-4201 SCsb is assured through double cleanliness testing using both traditional tape testing as well as high resolution pellet checking.
The specifications are set to exclude contaminants >100µm.
Contaminant counts/kg of particles < 100µm are reported.
Storage:
The environment or conditions of storage greatly influences the recommended storage time. Storage under extreme conditions may affect the quality, processing, or performance of the product. Storage should be in accordance with good manufacturing practices. The recommended storage conditions are dry conditions with temperatures between 50°F and 86°F (10°C and 30°C). When stored under these conditions, the product may be used by the customer for up to one year from the date of sale or two years from the date of manufacture, whichever comes first. It is recommended that the practice of using the product on a first-in / first-out basis be established.
Packaging:
DOW ENDURANCE™ HFDK-4201 SCsb can be delivered in Dow's UNICLEAN™ big bags, or in 1000 kg octabins.

Extrusion	Nominal Value	Unit
Melt Temperature	115 - 140	°C

Extrusion instructions

The DOW ENDURANCE™ HFDK-4201 SCsb can be processed with melt temperatures of 115 -140°C, preferably 135°C for HV applications.Screen packs are only required if there is a need to improve the homogenization of the melt or as protection from contamination entering during unloading and processing. If desirable DOW ENDURANCE HFDK-4201 SCsb allows the use of fine mesh screens (400mesh/65µm) without causing pressure build up over time. The use of 250 mesh screens (100µm) is common.At start-up, it is recommended to use DFDK-4850 transition compound to achieve stable extruder conditions.

NOTE	
1.	Base resin
2.	Karl Fischer titration
3.	0.2 MPa

Recommended distributors for this material

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