DOW™ Electrical & Telecommunications

HFDK-4201 EC

Crosslinkable Power Cable Insulation Compound

The Dow Chemical Company

Message:

HFDK-4201 EC is a long-life, unfilled, crosslinkable, low density polyethylene insulation compound designed for distribution and transmission power cable insulation applications. It has a very low level of contamination and bears the designation Extra Clean (EC). HFDK-4201 EC has been designed to have a low level of additive bloom for a long storage life, low dusting and an enhanced degree of scorch retardance for long production run lengths during cable manufacture.

HFDK-4201 EC is recommended for the insulation of power distribution cables rated up to 46 kV and can be used for transmission cables rated up to 69 kV

Specifications

HFDK-4201 EC is designed for use in power distribution and sub-transmission cables. Cables insulated with HFDK-4201 EC, using sound commercial manufacturing practice, would be expected to meet the latest editions of the following specifications and regulations:

ANSI/ICEA: S-94-649, S-97-682, S-93-639/NEMA WC74

AEIC CS8

UL 1072

CENELEC HD 620 S2

IEC 60502, 60840

GB/T 12706

BSI BS 6622, 7870-4

General Information	
Uses	Underground cable
	Wire and cable applications
	Insulating material
	Medium voltage insulation
Agency Ratings	AEIC CS8
	BS 6622
	BS 7870 4
	GB/T 12706
	HD 620 S2
	ICEA S-93-639
	ICEA S-94-649
	ICEA S-97-682
	IEC 60502
	IEC 60840
	NEMA WC-74
	UL 1072
Forms	Particle

Physical	Nominal Value	Unit	Test Method
Density (23°C)	0.920	g/cm³	ASTM D792

Moisture		ppm	Internal method
Change in Tensile Properties - 7 days (160°C)		%	ASTM D638
Thermoset			IEC 811-2-1
Elongation Under Load : 200°C		%	IEC 811-2-1
Elongation without Load : 200°C		%	IEC 811-2-1
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Strength	20.0	MPa	ASTM D638
Tensile Elongation (Break)	500	%	ASTM D638
Electrical	**Nominal Value**	**Unit**	**Test Method**
Volume Resistivity (23°C)	> 1.0E+16	ohms·cm	ASTM D257
Dielectric Strength			ASTM D149
3.18 mm [1]	> 30	kV/mm	ASTM D149
3.18 mm [2]	> 23	kV/mm	ASTM D149
3.18 mm [3]	> 39	kV/mm	ASTM D149
Dielectric Constant (23°C)	2.30		ASTM D150
Dissipation Factor (23°C)	< 3.0E-4		ASTM D150

Additional Information

(1) Nominal property values representing tests on molded, stress-relieved slabs. Cure times were 15 minutes at 175C. Values are typical, and not to be construed as specifications.(2) Tests are made in accordance with current ASTM, IEC, ISO, Dow Methods.Cleanliness Requirements
HFDK-4201 EC meets high standards for cleanliness (extra clean) established for an unfilled, crosslinkable cable insulation compound. Throughout the production process, the product is tested to ensure a high level of cleanliness. Extruded tapes are scanned by an automatic inspection system in a clean room. The purity data is managed using an acceptance sampling procedure, which ensures that the product meets or exceeds Dow extra-clean standards.
Processing Techniques
HFDK-4201 EC provides excellent performance and outstanding output rates over a range of extrusion conditions. For optimum results, melt extrusion temperatures in the range of 115°C to 135°C (240°F to 275°F) are recommended, although higher melt temperatures may be possible on certain extrusion lines with due care. In general the use of a minimum 60 mesh screen pack system is recommended. It is recommended that melt pressure and optionally melt temperature be monitored during cable production. Prior to cable production, processing conditions, melt temperatures and melt pressures should be established by compound bleeding trials. During start up it is recommended to use the thermoplastic peroxide free compound in order to achieve stable extrusion conditions. Specific processing recommendations can only be made when information about the application and actual extrusion and processing equipment types are known.
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, in the original unopened packages, are dry conditions with temperatures between 50°F and 104°F (10°C and 40°C). When stored between 50°F and 86°F (10°C and 30°C), 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. The recommended maximum storage time is 1 year at 104°F (40°C). It is recommended that the practice of using the product on a first-in / first-out basis be established.
Packaging
HFDK-4201 EC can be delivered in different packaging types dependent on specific material handling needs. This includes 500 kg UNICLEAN™ octabins, 500kg bottom unloading octabins or 1000kg bottom unloading octabins. Please consult with your local Dow sales representative to discuss your packaging needs.

NOTE	
1.	Method A (short time)
2.	Method B (step by step)
3.	Method C (traffic rate of rise)

Recommended distributors for this material

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