Dow ENDURANCE™ HFDK-4202 EC

Crosslinkable Power Cable Insulation Compound

The Dow Chemical Company

Message:

DOW ENDURANCE™ HFDK-4202 EC Polyethylene Compound is a long life water tree retardant, unfilled, crosslinkable low-density polyethylene compound. The permanent tree retardant additive provides improved performance service involving exposure to moisture while retaining the excellent physical, electrical and processing attributes of crosslinkable polyethylene.
DOW ENDURANCE HFDK-4202 EC compound provides electric utilities with:
State-of-the-art "water" tree-retardant technology, consistently outperforming conventional XLPE in all accelerated cable wet aging tests at ambient and elevated temperatures
Technology which has been proven in the field for over 25 years, demonstrating excellent reliability and help achieving lowest life cycle costs
Excellent electrical performance demonstrated by very high aged electrical strength and very low aged dissipation factor and power loss.
DOW ENDURANCE HFDK-4202 EC Compound represents the state-of-the-art in tree-retardant, power cable insulation compounds.
Specifications
DOW ENDURANCE HFDK-4202 EC tree-retardant compound is designed for use in power distribution and sub-transmission cables, especially in underground applications. DOW ENDURANCE HFDK-4202 EC provides improved performance over XLPE cables and is recommended, with or without moisture barriers, for use as cable insulation up to and including 69 kV applications. Cables insulated with DOW ENDURANCE HFDK-4202 EC, using sound commercial manufacturing practice, would be expected to meet the following specifications and regulations:
ANSI/ICEA: S-94-649, S-97-682, S-93-639 / NEMA WC74 (TR-XLPE requirements)
AEIC: CS8
RUS 50-70 (U-1)
CEA: WCWG-01, WCWG-02
UL 1072
IEC: 60502, 60840
CENELEC: HD 620 S1, Part 1, DIX 3 to 14
DIN VDE 0276-620
BSI BS 6622
GB/T 12706
DL/T 1070

General Information	
Uses	Tree Retardant Insulation
	Underground cable
	Wire and cable applications
	Insulating material
	Medium voltage insulation
Agency Ratings	AEIC CS8
	DIN VDE 0276-620
	HD 620 S1, Part 1, table 2A, DIX 3 to 14
	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 [1]	0.921	g/cm³	ISO 1183
Melt Mass-Flow Rate (MFR) [2] (190°C/2.16 kg)	2.1	g/10 min	ISO 1133
Contamination			Internal method
100.0 to 200.0 µm		number/kg	Internal method
200.0 to 500.0 µm	0	number/kg	Internal method
> 500.0 µm	0	number/kg	Internal method
Thermoset [3]			IEC 60811-2-1
Elongation with load : 200°C		%	IEC 60811-2-1
Elongation without load : 200°C		%	IEC 60811-2-1
Methanol Wash			
Insoluble Part		ppm	
Soluble Part		ppm	Internal method
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Strength [4]	21.0	MPa	IEC 60811-1-1
Tensile Elongation [5] (Break)	530	%	IEC 60811-1-1
Aging	**Nominal Value**	**Unit**	**Test Method**
Change in Tensile Strength [6] (150°C, 240 hr)	< 25	%	IEC 60811-1-1
Change in Ultimate Elongation [7] (150°C, 240 hr)	< 25	%	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 [8] (1 MHz)	< 2.30		IEC 60250
Dissipation Factor [9] (50 Hz)	3.0E-4		IEC 60250
Additional Information	**Nominal Value**	**Unit**	**Test Method**

Extra-Clean Requirements

DOW ENDURANCE™ HFDK-4202 EC meets the strictest standards for cleanliness 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 class 1,000 clean room. The purity data is managed using an acceptance sampling plan, which ensures that the product in the shipping container meets or exceeds extra-clean standards.

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.

Extrusion	Nominal Value	Unit
Melt Temperature	116 - 140	°C

Extrusion instructions

DOW ENDURANCE HFDK-4202 EC provides excellent surface finish and outstanding output rates over a broad range of conditions. For optimum results, melt extrusion temperatures in the range of 116°C to 140°C (240°F to 285°F) are recommended, although higher melt temperatures are possible on certain equipment with due care. Generally, use of a 20,80,150,80,20 mesh screen pack is recommended. However, specific recommendations for processing conditions can be determined when the application and type of processing equipment are known.

NOTE	
1.	Base Resin
2.	Base Resin
3.	0.20 MPa
4.	On crosslinked plates
5.	On crosslinked plates
6.	On crosslinked plates
7.	On crosslinked plates
8.	On crosslinked plates
9.	On crosslinked plates

Recommended distributors for this material

Susheng Import & Export Trading Co.,Ltd.

Tel: +86 21 5895 8519

Phone: +86 13424755533

Email: sales@su-jiao.com

No. 215, Lianhe North Road, Fengxian District, Shanghai, China