DOW™ Electrical & Telecommunications

HFDB-4202 NT

Crosslinkable Power Cable Insulation Compound

The Dow Chemical Company

Message:

HFDB-4202 NT is a long-life, water-tree-retardant, unfilled, crosslinkable, low density polyethylene insulation compound. The permanent tree-retardant additive provides improved performance in power cables in service involving exposure to moisture while retaining the excellent physical, electrical, and processing attributes of conventional, crosslinkable polyethylene.
HFDB-4202 NT Compound provides electric utilities with:
State-of-the-art "water" tree-retardant technology.
Proven in the field for over 25 years.
Excellent electrical performance.
Specifications
HFDB-4202 NT tree-retardant compound is designed for use in power distribution cables and especially in underground applications (with and without moisture barriers), providing for improved performance over XLPE cables. Cables insulated with HFDB-4202 NT, using sound commercial fabrication 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 (TR-XLPE requirements)
AEIC: CS8
RUS 50-70 (U-1)
CEA: WCWG-01 & WCWG-02
IEC: 60502
CENELEC: HD 620 S1/A3, HD 629 S1
GB/T 12706
DL/T 1070

General Information	
Uses	Underground cable Wire and cable applications Insulating material Medium voltage insulation
Agency Ratings	AEIC CS8 HD 620 S1 ICEA S-93-639 ICEA S-94-649 ICEA S-97-682 IEC 60502 NEMA WC-74
Forms	Particle

Physical	Nominal Value	Unit	Test Method
Specific Gravity	0.920	g/cm³	ASTM D792
The degree of cross-binding-Extractables		%	ASTM D2765A
Tensile strength retention rate			ASTM D638
14 days : 150°C	> 75	%	ASTM D638

30 days : 121°C	> 75	%	ASTM D638
30 days : 136°C	> 75	%	ASTM D638
Elongation retention rate			ASTM D638
14 days : 150°C	> 75	%	ASTM D638
30 days : 121°C	> 75	%	ASTM D638
30 days : 136°C	> 75	%	ASTM D638
Hot Creep (200°C)		%	ICEA T-28-562
Thermosetting (200°C)		%	ICEA T-28-562
Water-Tree Growth Rate [1]	10	%	ASTM D6097
Water-Tree Relative Size [2]	25 - 50	%	ASTM D6097

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+15	ohms·cm	ASTM D257
Dielectric Strength			ASTM D149
3.18 mm [3]	26	kV/mm	ASTM D149
3.18 mm [4]	23	kV/mm	ASTM D149
Dielectric Constant (60 Hz)	2.30		ASTM D150
Dissipation Factor (60 Hz)	5.0E-4		ASTM D150

Additional Information

Nominal property values above represent tests on molded, stress-relieved slabs. Cure times were 15 minutes at 175°C.Cleanliness Requirements
HFDB-4202 NT meets standards for cleanliness. Throughout the production process, the product is tested to ensure the level of cleanliness. Extruded tapes are scanned by an automatic inspection system in a class 10,000 clean room. The purity data is managed using an acceptance sampling plan which ensures that the product in the shipping container meets the quality standards.
Maximum Allowable in 1.6 Kg Tape: HFDB-4202 NT
5-9.9 mils (125-250 µm): 3
10-25 mils (250-630 µm): 2
>25 mils (>630 µm): 0
In addition, as HFDB-4202 NT is packaged, a continuous side stream of pellets is analyzed using an electronic pellet inspector. A review of detected contamination is incorporated into our quality program.
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 - 141	°C

Extrusion instructions

HFDB-4202 NT provides excellent surface finish and outstanding output rates over a broad range of conditions. For optimum results, melt extrusion temperatures in the range of 240 to 285°F (116-140°C) are recommended, although higher melt temperatures are possible on certain equipment with due care. Generally, a 60-40-20 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.	Rate is relative to rate for Dow's standard XLPE. FREQ = 1 kHz.
2.	Size is relative to size for Dow's standard XLPE

3.	Method A (short time)
4.	Method B (step by step)

Recommended distributors for this material

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