

Technical Information



DOW™ Wire & Cable HFDK-4201 NT Crosslinkable Power Cable Insulation Compound

Overview

HFDK-4201 NT is an unfilled, crosslinkable, low density polyethylene insulation compound designed for medium voltage power cable insulation applications. HFDK-4201 NT 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.

HFDK-4201 NT is suitable for the insulation of power distribution cables rated up to 46 kV.

Specifications

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

- CENELEC HD 620 S2
- IEC 60502, 60840
- GB/T 12706
- BSI BS 6622, 7870-4

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density ¹ (73°F (23°C))	0.920 g/cm ³	0.920 g/cm ³	ASTM D792
Moisture	< 200 ppm	< 200 ppm	Dow Method
Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Strength ²	2900 psi	20.0 MPa	ASTM D638
Tensile Elongation ²	500 %	500 %	ASTM D638
Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Hot Set - Under Load/Without Load @ 392°F (392°F (200°C))	<100%/<10% %	<100%/<10% %	IEC 60811-2-1
Aging	Nominal Value (English)	Nominal Value (SI)	Test Method
Change in Tensile Properties - 7 days @275°F ² (275°F (135°C))	< 25 %	< 25 %	ASTM D638
Electrical	Nominal Value (English)	Nominal Value (SI)	Test Method
Volume Resistivity ³ (73°F (23°C))	> 1.0E+16 ohms-cm	> 1.0E+16 ohms-cm	ASTM D257
Dielectric Strength ⁴			ASTM D149
0.125 in (3.18 mm), Method A (Short-Time)	> 760 V/mil	> 30 kV/mm	
0.125 in (3.18 mm), Method B (Step-by-Step)	> 590 V/mil	> 23 kV/mm	
0.125 in (3.18 mm), Method C (Slow Rate-of-Rise)	> 1000 V/mil	> 39 kV/mm	
Dielectric Constant ⁵ (73°F (23°C))	2.30	2.30	ASTM D150
Dissipation Factor ⁵ (73°F (23°C))	3.0E-3	3.0E-3	ASTM D150



Additional Information

Nominal property values representing tests on molded, stress-relieved slabs. Cure times were 15 minutes at 175°C. as specifications.

Tests are made in accordance with current ASTM, IEC, ISO or Dow Methods.

Cleanliness Requirements

HFDK-4201 NT meets standards for cleanliness established for an unfilled, crosslinkable distribution cable insulation compound.

Throughout the production process, the product is tested to ensure a specific 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 the referenced 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, in the original unopened packages, are dry conditions with temperatures between 50°F and 86°F (10°C and 30°C). When stored between 50°F and 86°F (10°C and 30°C), the product may be used 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 NT 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.

Extrusion Notes

HFDK-4201 NT 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 140°C (240°F to 285°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 screenpack system is recommended. However, specific processing recommendations can only be made when information about the application and actual extrusion and processing equipment types are known.

Notes

These are typical properties only and are not to be construed as specifications. Users should confirm results by their own tests.

¹ ASTM D792/ISO 1183

² ASTM D638/IEC 60811-1-1

³ ASTM D257/IEC 60093

⁴ ASTM D149/IEC 60243-1

⁵ ASTM D150/IEC 60250



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