DOW™ Wire & Cable HFDB-4201 EC
Crosslinkable Power Cable Insulation Compound

Overview

HFDB-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). HFDB-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.

HFDB-4201 EC is recommended for the insulation of power distribution and transmission cables rated up to 69kV.

Specifications
HFDB-4201 EC is designed for use in power distribution and transmission cables. Cables insulated with HFDB-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

*Applicable to USA manufactured product only.

Physical	Nominal Value	(English)	Nominal Value	(SI)	Test Method
Density [1] (73°F (23°C))	0.920	g/cm³	0.920	g/cm³	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%/<5%	%	<100%/<5%	%	IEC 60811-2-1
Aging	**Nominal Value**	**(English)**	**Nominal Value**	**(SI)**	**Test Method**
Change in Tensile Properties - 7 days @320°F [2] (320°F (160°C))	< 25.0		< 25.0		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)	> 580	V/mil	> 23	kV/mm	
0.125 in (3.18 mm), Method C (Slow Rate-of-Rise)	> 990	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-4		3.0E-4		ASTM D150

Form No. 400-00088984en
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Additional Information

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

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

Cleanliness Requirements

HFDB-4201 EC meet 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.

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

HFDB-4201 EC can be delivered in different packaging types dependent on the specific materials handling needs. This includes 1300lb/590 kg UNICLEAN™ octabins, 1300lb/590 kg top unloading octabins or 1000kg bottom unloading octabins. Please consult with your local Dow sales representative to discuss your packaging needs.

Extrusion Notes

HFDB-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 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

Form No. 400-00088984en
Rev: 2020-05-20

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