SI-LINK™ DFDA-5451 NT

Crosslinkable Polyethylene for Moisture Curable Power Cable Insulation

The Dow Chemical Company

Message:

SI-LINK™Cross-linked polyethylene DFDA-5451 NT is an ethylene-silane copolymer used for power cables and control cables below 1 kV.
DFDA-5451 NT can be wet-induced crosslinking after the cable is extruded after adding DFDB-5480 NT catalyst masterbatch. If black cables are required for UV protection, it is recommended to add DFDB-5410 BK carbon black masterbatch.
Since the catalyst and carbon black masterbatch are transported separately with the DFDA-5451 NT copolymer, these components are very stable during the shelf life. The cross-linking reaction can only occur under the condition that the components are in contact with the wet content after melting and mixing.
specifications
when DFDB-5480 NT is used or DFDB-5410 BK is selected for cross-linking, products DFDA-5451 NT can generally meet the requirements of cables not higher than 1 kV in the following standards:
UL 854
ICEA:S-66-524
Canadian Standards Association (CSA) RW90
IEC:60502-1

General Information			
Uses	Low voltage insulation Wire and cable applications		
Agency Ratings	ICEA S-66-524 IEC 60502-1 UL 854		
Forms	Particle		
Physical	**Nominal Value**	**Unit**	**Test Method**
Specific Gravity	0.922	g/cm³	ASTM D792
Melt Mass-Flow Rate (MFR) (190°C/2.16 kg)	1.5	g/10 min	ASTM D1238
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Strength [1]	16.5	MPa	ASTM D638
Tensile Elongation [2] (Break)	350	%	ASTM D638
Aging	**Nominal Value**	**Unit**	**Test Method**
Tensile strength retention-7 days [3] (121°C)	90	%	ASTM D638
Elongation retention rate-7 days [4] (121°C)	95	%	ASTM D638
Hot Creep - 15 min, 20N/cm² [5] (150°C)		%	ICEA T-28-562
Hot Set - 15 min, 0.2 MPa [6] (200°C)		%	IEC 60811-2-1
Electrical	**Nominal Value**		**Test Method**
Dielectric Constant [7] (1 kHz)	2.30		ASTM D150
Dissipation Factor [8] (60 Hz)	2.5E-4		ASTM D150
Additional Information			

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
Drying Temperature	60.0 - 71.1	°C
Drying Time	4.0 - 6.0	hr
Melt Temperature	149 - 232	°C

Extrusion instructions

DFDA-5451 NT will extrude with excellent surface quality and without extrusion scorch if the accompanying catalyst masterbatch, DFDB-5480 NT and the carbon black masterbatch, DFDB-5410 BK, are kept dry. It is especially recommended that the catalyst and carbon masterbatches be dried at 140°F-160°F (60°-70°C) for four to six hours using dehumidified air prior to mixing and extrusion. Melt temperatures in the range of 300°F-450°F (150-230°C) have been successfully used.After extrusion of the appropriate mixture of this product and its catalyst and carbon black masterbatches, cross-linking can be achieved by allowing moisture to diffuse into the product. Most fabricators find that a hot water bath or sauna works best. To achieve a hot creep elongation of 100%, the typical times shown below are required (45 mil [1.1 mm] wall on 14 AWG [2.1 mm^2] wire).
70°C: 10 hrs
90°C: 3.5 hrs
Specific recommendations for your particular equipment and conditions can be determined by contacting your local Dow Wire and Cable sales representative.

NOTE	
1.	Crosslinked polyethylene properties (95% DFDA-5451 NT, 5% DFDB-5480 NT)
2.	Crosslinked polyethylene properties (95% DFDA-5451 NT, 5% DFDB-5480 NT)
3.	Crosslinked polyethylene properties (95% DFDA-5451 NT, 5% DFDB-5480 NT)
4.	Crosslinked polyethylene properties (95% DFDA-5451 NT, 5% DFDB-5480 NT)
5.	Measured on 14 AWG (2.1 mm^2) wire with a 30 mil (0.75 mm) wall after 4 hours curing in 90°C water.Crosslinked polyethylene properties (95% DFDA-5451 NT, 5% DFDB-5480 NT)
6.	Measured on 14 AWG (2.1 mm^2) wire with a 30 mil (0.75 mm) wall after 4 hours curing in 90°C water.Crosslinked polyethylene properties (95% DFDA-5451 NT, 5% DFDB-5480 NT)
7.	Crosslinked polyethylene properties (95% DFDA-5451 NT, 5% DFDB-5480 NT)
8.	Crosslinked polyethylene properties (95% DFDA-5451 NT, 5% DFDB-5480 NT)

infringement occurs, please contact us immediately.

Recommended distributors for this material

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