SI-LINK™ AC DFDB-5451 NT

Crosslinkable Polyethylene for Moisture Curable Power Cable Insulation

The Dow Chemical Company

Message:

Crosslinkable, silane-ethylene copolymer, used for power cable insulation
DFDB-5451 NT is a developmental silane-ethylene copolymer, used for power cables and control cables below 1kV Manufacturing. DFDB-5451 NT will soon go on sale under the brand SI-LINK™AC DFDB-5451 Natural crosslinkable polyethylene. After extruding together with DFDA-5488 NT catalyst masterbatch and wet diffusion into the system, DFDB-5451 NT can undergo crosslinking reaction. If black products are required, it is recommended to add DFDB-5410 BK carbon black masterbatch to DFDB-5451 NT and DFDA-5488 NT.
since the catalyst masterbatch, carbon black masterbatch and DFDB-5451 NT are transported separately, each component is very stable during the shelf life. The cross-linking reaction of the whole system can only occur when the melt of the components is mixed and contacted with wet content and high temperature.
specifications
when DFDA-5488 NT is used for cross-linking with DFDB-5451 NT or DFDB-5410 BK is used for cross-linking, its products shall meet the requirements for low voltage cables below 1kV in the following specifications:
UL: 854
ICEA: S-66-524
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, 20 N/cm² [5] (150°C)		%	ICEA T-28-562
Hot Set - 15 min, 0.2 MPa [6] (200°C)		%	IEC 60811-2-1
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 - 210	°C

Extrusion instructions

DFDB-5451 NT will extrude with excellent surface quality and without extrusion scorch if the accompanying catalyst masterbatch, DFDA-5488 NT and the carbon black masterbatch, DFDB-5410 BK, are kept dry. It is especially recommended that the carbon masterbatch 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-410°F (150-210°C) have been successfully used.After extrusion of the appropriate mixture of this product and its catalyst and carbon black masterbatches, crosslinking can be achieved by allowing moisture to diffuse into the product.Fabricators can use a hot water bath, sauna or ambient conditions to promote curing following cable manufacture. To achieve a hot creep elongation of 100%, the typical times shown below are required (30 mil [0.76 mm] wall on 14 AWG [2.1 mm^2] wire).
90°C sauna: 15 minutes
23°C, 70% rh: 1.5 days
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 (88.7% DFDB-5451 NT, 5% DFDA-5488 NT, and 6.3% DFDB-5410 BK)
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4.	Crosslinked polyethylene properties (88.7% DFDB-5451 NT, 5% DFDA-5488 NT, and 6.3% DFDB-5410 BK)
5.	Measured on 14 AWG (2.1 mm^2) wire with a 30 mil (0.76 mm) wall after 15 minutes curing in 90°C water.Crosslinked polyethylene properties (88.7% DFDB-5451 NT, 5% DFDA-5488 NT, and 6.3% DFDB-5410 BK)
6.	Measured on 14 AWG (2.1 mm^2) wire with a 30 mil (0.76 mm) wall after 15 minutes curing in 90°C water.Crosslinked polyethylene properties (88.7% DFDB-5451 NT, 5% DFDA-5488 NT, and 6.3% DFDB-5410 BK)

infringement occurs, please contact us immediately.

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