SI-LINK™ DFDB-5400 NT

Moisture Curable System, Flame Retardant Masterbatch

The Dow Chemical Company

Message:

SI-LINK[™] DFDB-5400 NT is a RoHS (Reduction of Hazardous Substances)-compliant flame retardant masterbatch designed to be used in conjunction with SI-LINK[™] DFDA-5451 NT Polyethylene and the catalyst masterbatch SI-LINK[™] DFDB-5480 NT Polyethylene to form a flame retardant SI-LINK polyethylene insulation system. This system is bulletinized by UL as DFDB-5425 and is moisture curable. The specific gravity of the system is 1.04. It is recommended for use in low voltage power cable and industrial cable applications. SI-LINK[™] DFDB-5400 NT is formulated to pass the UL-44 horizontal burn test on 14 AWG (1.63 mm) wire, 0.030 in. insulation wall thickness, at a 25% loading with 70% SI-LINK[™] DFDA-5451 NT and 5% SI-LINK[™] DFDB-5480 NT.

UV resistance allowing the wire to be printed "SunRes" may be achieved with the addition of a UV stabilizer package. The formulation for such an additive is available upon request and the resulting product is bulletinized by UL as DFDB-5425 UV. For accelerated curing applications SI-LINK[™] DFDB-5400 NT can be used in conjunction with SI-LINK[™] AC DFDB-5451 NT Polyethylene and the catalyst masterbatch SI-LINK[™] AC DFDA-5488 NT Polyethylene to form a flame retardant SI-LINK[™] AC polyethylene insulation system. This system is recognized by UL as DFDB-5425 AC. It is formulated to pass the UL-44 horizontal burn test on 14 AWG (1.63 mm) wire, 0.030" wall thickness, at a 25% loading with 70% SI-LINK[™] DFDB-5451 NT and 5% SI-LINK[™] AC DFDA-5488 NT.

SPECIFICATIONS

The DFDB-5425 systems are bulletinized by UL for XHH, XHHW, XHHW-2, RHH, RHW, RHW-2, SIS, USE and USE-2. They are also suitable for CSA RW-90, and RWU-90 applications.

General Information	
Wire Types	RHH
	RHW
	RHW-2
	RW-90
	RWU-90
	SIS
	USE-2
	ХНН
	ХННЖ
	XHHW-2
	Uses

RoHS Compliance	RoHS compliance		
Physical	Nominal Value	Unit	Test Method
Specific Gravity ¹	1.04	g/cm³	ASTM D792
Degree of Crosslinking	> 80	%	ASTM D2765A
Change in Relative Permittivity			UL 44
1-14 days	2.0	%	UL 44
7-14 days	1.0	%	UL 44
Tensile strength retention-7 days(121°C)	80	%	ASTM D412
Elongation retention rate-7 days(121°C)	80	%	ASTM D412
Thermal deformation (131°C)		%	UL 44
Thermosetting-Elongation(200°C) ²		%	IEC 60811-2-1
Capacitance ³			UL 44

pf, 1 day : 90°C	750		UL 44
pf, 14 days : 90°C	750		UL 44
pf, 7 days : 90°C	750		UL 44
Flame test-Horizontal ⁴	Pass		UL 44
Crushing Test	6005	Ν	UL 44
Flexibility - 4 hrs (-25°C) ⁵	No visible cracks		UL 854
Head Temperature	171	°C	
Elastomers	Nominal Value	Unit	Test Method
Tensile Strength	2000	MPa	ASTM D412
Tensile Elongation (Break)	300	%	ASTM D412
Electrical	Nominal Value	Unit	Test Method
Relative Permittivity ⁶	3.00		UL 44
Flammability	Nominal Value	Unit	Test Method
Oxygen Index	26	%	ASTM D2863
Extrusion	Nominal Value	Unit	
Drying Temperature	66.0	°C	
Drying Time	4.0 - 6.0	hr	
Cylinder Zone 1 Temp.	149	°C	
Cylinder Zone 3 Temp.	160	°C	
Cylinder Zone 5 Temp.	171	°C	
Melt Temperature	185	°C	
Die Temperature	171	°C	
Extrusion instructions			

The data below summarizes conditions for a commercial extrusion run of DFDB-5425 (DFDB-5400 NT /DFDA-5451/DFDB-5480, 25%/70%/5%). Using these conditions with a standard polyethylene screw afforded high quality finished wire.Desiccant drying of the masterbatches at 150°F (66°C) for 4-6 hours is recommended. Wire pre-heat of 176-212°F (80-100°C) is recommended to obtain the typical physical properties for circuit size conductors. Adequate curing requires exposure for a minimum of 24-48 hours to 194°F (90°C) water or steam. Exact extrusion characteristics will of course be dependent on the equipment in use and can only be determined during cable trials.ExtruderScrew L/D: 15:1 to 20:1Screw Suggested: Single FlightCompression Ratio: 2.5:1 to 3.5:1Screen Pack: 20/40/60/20 Mesh

NOTE	
1.	23°C
2.	15 min, 20N/cm ²
	These tests were conducted on
	#14 AWG solid wires insulated with
3.	0.030 in. wall thickness insulation.
	No. 14 AWG 30 mil wallThese tests
	were conducted on #14 AWG solid
	wires insulated with 0.030 in. wall
4.	thickness insulation.
	This test was conducted on # 4
	AWG stranded wire insulated with
5.	0.060 in. wall thickness insulation.
	1 dayThese tests were conducted
	on #14 AWG solid wires insulated
	with 0.030 in. wall thickness
6.	insulation.

The information and data on this page are provided by manufacturers and document providers. SHANGHAI SUSHENG assumes no legal liability. It is strongly recommended to verify all technical data with material suppliers before final material selection. All rights belong to the original authors. If any 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

