UNIGARD™ HP DFDA-6530 NT

Halogenated Flame Retardant Insulation Compound

The Dow Chemical Company

Message:

UNIGARD™HP DFDA-6530 NT is a flame retardant, irradiated cross-linked polyethylene copolymer used as wire insulation material. It is recommended to use it for 600 volt power cables and control cables, which are suitable for applications with operating temperatures as high as 90°C in humid environments.
UNIGARD™HP DFDA-6530 NT can be used in XHHW, RHW, RHH, SIS, and USE A, B or C applications. When the insulation layer thickness is 30 mil (0.76mm), its 14 AWG wires can meet the VW-1 application requirements. This material has been approved for UL Style 20292 applications. Each manufacturer must contact UL for certification requirements related to the purpose of its application. The best performance can be obtained when the irradiation amount is 20 megarads.

General Information			
Uses	Flame Retardant Insulation Halogenated Insulation Low voltage insulation Wire and cable applications Insulating material Moisture-resistant insulating material		
Forms	Particle		
Processing Method	Co-extrusion molding		
Physical	**Nominal Value**	**Unit**	**Test Method**
Density	1.30	g/cm³	ASTM D1505
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Strength	12.4	MPa	ASTM D638
Tensile Elongation (Break)	250	%	ASTM D638
Flexural Modulus - 1% Secant	103	MPa	ASTM D790
Aging	**Nominal Value**	**Unit**	**Test Method**
Tensile strength retention-7 days(121°C)	100	%	ASTM D638
Elongation retention rate-7 days(121°C)	95	%	ASTM D638
SIC			UL 44
in water 75°C (167°F), after 24 hrs	3.23		UL 44
in water 75°C (167°F), increase, 1 to 14 days	2.0	%	UL 44
in water 75°C (167°F), increase, 7 to 14 days	0.10	%	UL 44
Insulation resistance-in water(16°C)	50000	Mohms/1000 ft	UL 44
VW-1	Pass		UL 44
Flame test-Hoizontal	Pass		UL 44
Electrical	**Nominal Value**	**Unit**	**Test Method**
Dielectric Constant (60 Hz)	3.20		ASTM D150
Dissipation Factor (60 Hz)	3.0E-3		ASTM D150

Flammability	Nominal Value	Unit	Test Method
Oxygen Index	28 - 30	%	ASTM D2863

Extrusion instructions

Conditions for a commercial extrusion run using DFDA-6530 NT are shown below. Using these conditions with a standard polyethylene screw afforded high quality finished wire. Exact extrusion characteristics will, of course, be dependent on the equipment in use and can only be determined during cable trials. Hopper drying at 150°F (66°C) before extrusion is recommended to remove moisture and diminish the possibility of die drool. Drying time is 4-6 hours.Compound
DFDA-6530 NT on #14 Solid Copper Conductor with 0.030" (0.76 mm) Wall Thickness.
Extruder
Screw L/D: 15:1 to 20:1
Screw Suggested: Single Flight
Compression Ratio: 2.5:1 to 3.5:1
Screen Pack: 40/20 mesh
Extrusion Temperatures
Typical conditions for 2.5 in diameter 24:1 L/D extruder
Barrel Feed Zone: 255°F (124°C)
Barrel Center Zone: 255°F (124°C)
Barrel Metering Zone: 260°F (127°C)
Crosshead:
Head: 255°F (124°C)
Die: 250°F (121°C)
Melt Temperature: 265°F (129°C)
Screw:
Circulating Water: 170°F (77°C)
Coloring
UNIGARD™ HP DFDA-6530 NT is a colorable compound. Our experience has been that the color masterbatch materials recommended for use with polyethylene wire and cable products serve the purpose in the DFDA-6530 NT. Generally speaking, color masterbatch added at the two percent by weight level gives adequate color and disperses well in the extrusion process.
Irradiation Processing Parameters: E-BEAM Services, Inc. Cranbury, NJ utilizing RDI 4.5 MeV Dynamitron accelerator. Respective voltage/current is 3.0 MeV/28 - 48 Ma.

Recommended distributors for this material

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