UNIGARD™ HP DGDA-1412 NT

Halogenated Flame Retardant Insulation Compound

The Dow Chemical Company

Message:

Thermoplastic flame retardant materials
UNIGARD™HP DGDA-1412 Natural is a halogen-containing flame retardant, thermoplastic high density polyethylene, used in communication grade insulation materials, with excellent extrusion processing properties, physical properties and electrical properties. It can be used not only for thin-walled insulation materials, but also for thick-walled COAX insulation materials, such as communication cables that meet NEC Article 725 and 800 requirements. When appropriate cable design and sheath material are selected, the material can make the cable meet the requirements of UL-1581 and Canadian Standards Association (CSA) FT-4 vertical bracket cable and UL-1666 rise cable combustion test.

General Information			
Uses	Flame Retardant Insulation Halogenated Insulation Low voltage insulation Wire and cable applications Electronic insulation Insulating material		
Forms	Particle		
Processing Method	Extrusion		
Physical	**Nominal Value**	**Unit**	**Test Method**
Density	1.14	g/cm³	ASTM D1505
Melt Mass-Flow Rate (MFR) (190°C/2.16 kg)	0.75	g/10 min	ASTM D1238
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Strength [1]	19.3	MPa	ASTM D638
Tensile Elongation [2] (Break)	500	%	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)	90	%	ASTM D638
Electrical	**Nominal Value**	**Unit**	**Test Method**
Dielectric Constant			ASTM D1531
100 kHz	2.42		ASTM D1531
1 MHz	2.42		ASTM D1531
Dissipation Factor			ASTM D1531
100 kHz	2.0E-4		ASTM D1531
1 MHz	2.0E-4		ASTM D1531
Flammability	**Nominal Value**	**Unit**	**Test Method**
Flame Rating (1.90 mm)	V-2		UL 94
Oxygen Index	28	%	ASTM D2863
Extrusion instructions			

Typical extrusion conditions are listed below. Exact conditions will depend upon the equipment used and the application.Extruder
Screw L/D: 15:1 to 24:1
Screw Suggested: Polyethylene metering
Compression Ratio: 2.5:1 to 3.5:1
Screen Pack: 20/40/60/20 mesh
Extrusion Temperatures
Typical conditions for 2.5 in diameter 24:1 L/D extruder.
Barrel Feed Zone: 360°F (182°C)
Barrel Transition Zone: 420°F (215°C)
Barrel Metering Zone: 440°F (227°C)
Crosshead Zone: 440°F (227°C)
Melt Temperature: 440°F (227°C)
Wire Preheat Temperature: 280°F (138°C)
Die
PE type double taper
Die Size
Finish Diameter +0.001 in
Coloring
UNIGARD HP DGDA-1412 Natural is a colorable compound. Our experience has been that the color masterbatch materials recommended for use with polyethylene or ethylene copolymer wire and cable products serve the purpose in DGDA-1412 Natural. Generally speaking, color masterbatch added at the level from 0.5 to 1.0% by weight gives adequate color and disperses well in the extrusion process.

NOTE	
1.	Based on 22 AWG (0.643 mm dia.) copper with 0.014 in. insulation.
2.	Based on 22 AWG (0.643 mm dia.) copper with 0.014 in. insulation.
3.	Based on 22 AWG (0.643 mm dia.) copper with 0.014 in. insulation.
4.	Based on 22 AWG (0.643 mm dia.) copper with 0.014 in. insulation.

Recommended distributors for this material

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