Dow ENDURANCE™ DHDA-7708 BK

Semiconductive Linear Low Density Polyethylene Compound for Cable Jacketing

The Dow Chemical Company

Message:

DOW ENDURANCE™ DHDA-7708 BK is a thermoplastic semiconductive compound specifically designed for jacketing over medium, high, and extra-high voltage power cables. It combines the excellent physical properties and low moisture vapor transmission normally associated with Dow insulating jacket materials with the conductivity of thermoplastic semiconductive insulation shielding compounds. In medium voltage cable applications, a semiconductive jacket provides cable endurance and prolongs cable life by reducing neutral-to-ground impulse voltage. The semiconductive jacket enables on-reel cable diagnostic analysis in high and extra-high voltage applications.
Compared to conventional thermoplastic semiconductive materials, DOW ENDURANCE™ DHDA-7708 BK offers:
Improved environmental stress-crack resistance
Improved low-temperature properties
Improved thermomechanical properties
Reduced adhesion to strippable insulation shields
Improved cut-through and abrasion resistance
Reduced moisture vapor transmission
Details are shown in Figures 1 to 4
Specifications
Cables jacketed with DOW ENDURANCE™ DHDA-7708 BK, prepared using sound commercial fabrication practice, would be expected to meet the following specifications:
AEIC: CS8, CS9
ICEA: S-94-649 Type 1, S-108-720 Type 1
IEC: 60502, 60840, 62067

General Information	
Uses	Semiconductive Jacketing
	Semiconductive Shield
	Underground cable
	Cable sheath
	Wire and cable applications
Agency Ratings	AEIC CS8
	AEIC CS9
	ICEA S-108-720 Type 1
	ICEA S-94-649 Type 1
	IEC 60502
	IEC 60840
	IEC 62067
Forms	Particle

Physical	Nominal Value	Unit	Test Method
Density	0.980	g/cm³	ASTM D1505
Environmental Stress-Cracking Resistance (10% Igepal, F0)	> 500	hr	ASTM D1693
Hardness	**Nominal Value**	**Unit**	**Test Method**
Durometer Hardness (Shore D)	55		ASTM D2240

Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus - Secant	345	MPa	ASTM D638
Tensile Strength	11.7	MPa	ASTM D638
Tensile Elongation (Break)	450	%	ASTM D638
Films	**Nominal Value**	**Unit**	**Test Method**
Water Vapor Transmission Rate (38°C, 90% RH)	1.5	$g/m^2/24$ hr	ASTM F1249
Aging	**Nominal Value**	**Unit**	**Test Method**
Tensile strength retention-1 week (100°C)	75	%	ASTM D638
Elongation retention rate-1 week (100°C)	75	%	ASTM D638
Heat Distortion (ICEA) [1] (90°C)	1.0	%	ASTM D2632
Thermal	**Nominal Value**	**Unit**	**Test Method**
Brittleness Temperature			ASTM D746
-- [2]	-70.0	°C	ASTM D746
-- [3]	-50.0	°C	ASTM D746
Electrical	**Nominal Value**	**Unit**	**Test Method**
Volume Resistivity			ASTM D991
23°C	25	ohms·cm	ASTM D991
90°C	50	ohms·cm	ASTM D991
Additional Information			
Nominal property values above represent tests on molded, stress-relieved slabs. Cure times were 15 minutes at 175°C.			
Figure 4: Cut-Through Resistance			

Extrusion	Nominal Value	Unit
Drying Temperature	68.0 - 80.0	°C
Drying Time	2.0 - 4.0	hr
Melt Temperature	218 - 246	°C
Extrusion instructions		
For optimum extrusion results with DOW ENDURANCE™ DHDA-7708 BK, use melt extrusion temperatures in the 425 to 475°F (218 to 246°C) range. Optimum radial resistivity results have been obtained by maximizing the air gap (distance from extrusion die to cooling water). Specific processing conditions can be determined only by trial on individual equipment. Pre-extrusion dehumidified hopper drying for 2 to 4 hours in the range of 155 to 175°F (68 to 80°C) to remove moisture is recommended.		

NOTE	
1.	plaque
2.	F50
3.	Notched

Recommended distributors for this material

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