

Dow ENDURANCE™ HFDA-9563 BK

Semiconductive Shielding

The Dow Chemical Company

Message:

DOW ENDURANCE™ HFDA-9563 BK is a cross-linkable semiconductive polyethylene designed for conductor and bonded insulation shielding of power cables, which meets the requirements of AEIC CS 5-87, AEIC CS 7-87, ICEA S-66-524 and IEC 60840. It has the following important advantages.

1. Super smooth extruded surface
2. Good scorch resistance
3. Strong adhesion to insulation layer
4. Good thermal stability
5. Excellent electric conductivity

General Information			
Agency Ratings	AEIC CS5-87		
	AEIC CS7-87		
	ICEA S-66-524		
	IEC 60840		
Appearance	Black		
Forms	Particle		
Physical	Nominal Value	Unit	Test Method
Density	1.16	g/cm ³	ASTM D1505
Melt Mass-Flow Rate (MFR) ¹ (190°C/21.6 kg)	12	g/10 min	ASTM D1238
Environmental Stress-Cracking Resistance	> 200	hr	ASTM D1693
Degree of Crosslinking ²	> 75	%	ASTM D2765A
Tensile strength retention-168 hrs(150°C) ³	> 85	%	ASTM D638
Elongation retention rate-168 hrs(150°C) ⁴	> 85	%	ASTM D638
MDR ⁵			Internal method
Tmax : 180°C		J	Internal method
TS2 : 180°C	> 2.0	min	Internal method
Hardness	Nominal Value	Unit	Test Method
Durometer Hardness (Shore D)	53		ASTM D2240
Mechanical	Nominal Value	Unit	Test Method
Tensile Strength ⁶	13.0	MPa	ASTM D638
Tensile Elongation ⁷ (Break)	220	%	ASTM D638
Thermal	Nominal Value	Unit	Test Method
Brittleness Temperature	< -40.0	°C	ASTM D746
Electrical	Nominal Value	Unit	Test Method
Volume Resistivity ⁸			ASTM D991
23°C	15	ohms · cm	ASTM D991
90°C	1.5E+2	ohms · cm	ASTM D991

Extrusion instructions

Recommended Extrusion Conditions

Barrel: 100 - 115°C

Head: 120°C

Compound at Die: 120 - 130°C

DOW ENDURANCE™ HFDA-9563 BK is a cross-linkable product and thus requires an extrusion stock temperature in the range of 120 -130 deg.C to avoid precure. Specific processing conditions can be determined only by trials on individual processing equipment. Dehumidified hopper drying at 60 deg.C for 4 hours may be employed to remove moisture prior to extrusion.

NOTE

1.	without peroxide
2.	Curing Condition: 180°C, 25min
3.	Curing Condition: 180°C, 25min
4.	Curing Condition: 180°C, 25min
5.	Curing Condition: 180°C, 25min
6.	Curing Condition: 180°C, 25min
7.	Curing Condition: 180°C, 25min
8.	Curing Condition: 180°C, 25min

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