

Dow ENDURANCE™ HFDK-4201 SC

Crosslinkable Power Cable Insulation Compound

The Dow Chemical Company

Message:

Ultra-clean polyethylene material, used as insulation material for high-voltage power cables

HFDK-4201 SC is a primary color, high-purity cross-linked polyethylene material, specially used for insulation materials for high-voltage power cables.

HFDK-4201 SC contains a stabilizer that will not permeate, which makes it have high heat resistance, long-term stability and the best crosslinking performance.

Main features:

When the most advanced cable manufacturing process is adopted, the ultra-clean HFDK-4201 EHV meets the requirements of the following standards:

IEC 62067: >150kV - <500kV

IEC 60840: >30kV - <150kV

AEIC CS9: >45kV - <345kV

Application areas:

It is recommended to use HFDK-4201 SC as an insulating material for 69kV-220kV high-voltage cables.

General Information			
Uses	Underground cable		
	Wire and cable applications		
	High voltage insulation		
	Insulating material		
Agency Ratings	AEIC CS9		
	HD 632 S2		
	ICEA S-108-720		
	IEC 60840		
	IEC 62067		
Forms	Particle		
Physical	Nominal Value	Unit	Test Method
Density ¹	0.921	g/cm ³	ISO 1183
Melt Mass-Flow Rate (MFR) (130°C/2.16 kg)	0.30	g/10 min	ISO 1133
Moisture ²		ppm	Internal method
Change in Tensile Properties - 10 days (150°C)		%	IEC 60811-1-1
Thermoset ³			IEC 811-2-1
Elongation under Load : 200°C		%	IEC 811-2-1
Permanent Deformation : 200°C		%	IEC 811-2-1
Gottfert Elastograph - Torque	0.60	N·m	ISO 6502
Reaction Speed - t ₉₀ (180°C)	5.0	min	ISO 6502
Mechanical	Nominal Value	Unit	Test Method
Tensile Strength	20.0	MPa	IEC 60811-1-1
Tensile Elongation (Break)	500	%	IEC 60811-1-1

Electrical	Nominal Value	Unit	Test Method
Volume Resistivity	> 1.0E+16	ohms·cm	IEC 60093
Dielectric Strength	> 30	kV/mm	IEC 60243-1
Dielectric Constant (1 MHz)	< 2.30		IEC 60250
Dissipation Factor (50 Hz)	< 3.0E-4		IEC 60250

Additional Information	Nominal Value	Unit	Test Method
热固性测试,负载下的伸长率,IEC 60811-2-1,200°C,0.2 MPa:<100%热固性测试,永久变形,IEC 60811-2-1,200°C,0.2 MPa:<5%Gottfert 弹性硫化仪扭矩,ISO 6502:0.6 Nm烧焦时间 TS1,Dow 方法,140°C:50 分钟反应速度 (t90),ISO 6502:5 分钟甲醇冲洗,可溶部件,Dow 方法:<500 ppm甲醇冲洗,不可溶部件,Dow 方法:<50 ppm湿度,DIN 53715:100µm 的污染物.报告 < 100µm 的颗粒污染物数/kg.熔体颜色:在交叉结合前 HFDK-4201 熔体的颜色可能是从橙色到微红色.此颜色来自抗氧化剂和过氧化物之间的交互作用,但在交叉结合反应期间将消失.注意 DFDK-4850 不显示此颜色,因为在转化材料中没有出现过氧化物.存放:HFDK-4201 SC 在存放时非常稳定,因为即使在温度升高时也测量不到发生抗氧化剂迁移.因此 HFDK-4201 SC 不会产生灰尘,但是在低温条件存放很长时间的物料例外.建议最长存放时间为 1 年,其中在低于推荐的最低温度 15°C 下存放的时间不应超过 2 个月.最长在生产后 2 年内,此材料可用于普通的高压和中压应用中.包装:HFDK-4201 SC 可装在 Dow 的 UNICLEAN™ 大包装袋中,确保采用最佳的清洁方式,或使用 1000 kg 的八角箱.			

Extrusion	Nominal Value	Unit
Melt Temperature	115 - 140	°C

Extrusion instructions
加工建议:可在 115 -140°C 的熔体温度下加工 HFDK-4201 SC,对于 HV 应用最好为 130°C.只有在需要改进熔体的同质性,或在卸料和加工期间防止污染物进入时才需要筛网组.如需要,HFDK-4201 SC 允许使用精细网筛(400 网孔/65µm),而不会造成压力随着时间的推移而增加.一般使用 250 网筛 (100µm).开始时,建议使用 DFDK-4850 实现稳定的挤塑机条件.

NOTE
1. Base resin
2. Karl Fischer titration
3. 0.2 MPa

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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



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