

Compound RDX 3155-IN-S

Radiation crosslinkable high performance flame retardant compound for cable and wire insulation applications for 155 C continuous operating temperature

Compound properties

RDX 3155-IN-S is a high grade radiation crosslinkable compound, offering excellent mechanical and electrical properties. The excellent extrudability and the high temperature rating makes this compound an ideal choice for the insulation of heat-resistant wires and cables for applications in areas where thin wires should withstand the high temperatures in small (engine) compartments.

Features

- Able to withstand temperatures of 280 C during a short period, without detrimental effect
- Safer cable and wire constructions during overload conditions
- For thinner and lighter cable constructions compared to conventional constructions
- Improved routing ability
- Continuous operating temperature from – 50 C to + 155 C (ISO 6722 Class D)
- It combines an extremely thin wall thickness of the insulation (< 0.30 mm), a low specific gravity and a high current carrying capacity
- Excellent resistance to gasoline, engine oil, diesel fuel, engine coolant, brake fluid and other harmful fluids in engine and motor compartments
- Superb abrasion resistance
- Easy strippable
- Highly resistant to ozone, weathering, hydrolysis and heat pressure

Specifications

- ISO 6722 Class D, SAE J-1127 STX, SAE J-1128 TXL.

Applications

Power train wire, automotive wire, ABS break systems, sensor wires, motor leads, battery cables

Properties	Test Method	Typical value
<i>Physical properties</i>		
Spec. gravity	ISO 1183	1.22 gr/cm ³
Tensile strength	IEC 811-1-1	>16 Mpa
Elongation at break	IEC 811-1-1	>300%
Elongation at break @ - 50 C	IEC 811-1-1	> 30%
Abrasion resistance		Excellent
<i>Electrical properties</i>		
Dielectric constant (50 Hz, 20 C)	ASTM D 150	3
Volume resistivity	ASTM D 257	10@15 ohm.cm
<i>Burning properties</i>		
Limited oxygen index	ASTM D 2863	27%
<i>Melt flow properties</i>		
MFI (190 C, 5kg)	ISO 1133	3,1 gr/10 min

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Properties					
Resistance against fluids					
Fluid	Immersion T	Immersion t		% Swell in OD	1 kV Voltage withstand
Diesel fuel	100 C	168 hr		< 5 %	Pass
Gasoline	20 C	168 hr		<5 %	Pass
Brake fluid	100 C	168 hr		<5 %	Pass
Engine oil	100 C	168 hr		< 5%	Pass
Engine coolant	100 C	168 hr		< 5%	Pass
Crosslinking				Test Method	Typical value
Dose (e-beam radiation)					100-150 kGy
Hot-set-elongation : - 200 C and a load of 20 N/cm2				EN 60811-2-1/8	20-40%
: - Set (after removal of load)				EN 60811-2-1/8	< 15%

Extrusion guide	
Screw	Barrier type screw (BM) having high flights and a L/D-ratio > 24
Screw cooling	For high line speeds, cooling the screw to around 80 C can be very effective, although this could lead to pulsation.
Screen pack	Not required
Extrusion dies	For pressure extrusion, normal dies are recommended
Die opening	Die opening of approximately 5% below the required OD of the wire for optimal smoothness of the surface.
Temp. profile	Zone 1 to 4 : 150 - 170 - 180 - 180 Head : 180 Die : 180 (C)
Conductor	Preheating of temperatures between 100 - 150 Celsius to achieve a maximum elongation at break of the insulation material is required
Quenching	It is recommended to cool with 80 Celsius water in the first cooling compartment to improve the elongation at break of the insulation material.
Conditioning	Pre-dry at 50 C during 3 hrs
Wire	Tin-plated (a version containing a copper-stabiliser can be supplied as well)

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