

RDX HSC-2

Flexible halogenfree flame retardant radiation crosslinkable compound for high temperature applications, showing excellent IRM 902 oil resistance.

Compound properties

The radiation crosslinkable compound RDX HSC-2 is a flexible halogenfree, flame-retarded compound, developed to offer good mechanical and fluid resistance properties at elevated temperatures. The excellent flammability properties, combined with the excellent processability makes this thermoplastic compound an ideal choice for flexible non halogen, low smoke wires and cables in harsh applications such as the the ship-building and off-shore industry. The compound is ideal for applications like industrial tray cables, marine cables, shipbuilding and military applications in harsh environments and can meet UL 1277 tray cable jacket specifications.

The compound can meet IEC 60092-359 Table II, SHF 2 requirements.

The compound RDX HSC-2 is easy processable and can be extruded on standard PVC or PE screws having a low compression ratio of 1.2 :1

Properties (*)	Test Method	Typical value
<i>Physical properties</i>		
Specific gravity	ISO 1183	1.49 gr/cm ³
Hardness	ASTM D-2240	92 Shore A
Tensile max.	IEC 811-1-1	12,5 MPa
Elongation at break	IEC 811-1-1	185%
Water absorption (24 h, 23 C)	ASTM D-570	0.5%
Water absorption (10 days, 70 C)	IEC 811-1-3	4 mg/cm ²
<i>Thermal properties</i>		
Melt flow rate (160 C; 21.6 kg)		10 cm ³ /min
Heat shock (1 hr, 200 C)	IEC 811-3-1	Pass
Knife penetration : - after 4 hrs at 125 C	IEC 811-3-1	15%
Heat ageing (7 days at 121 C)		
-Tensile strength	IEC 811-1-1	variation + 5 %
-Elongation at break	IEC 811-1-1	variation -10 %
Heat ageing (7 days at 136 C)		
-Tensile strength	IEC 811-1-1	variation + 10 %
-Elongation at break	IEC 811-1-1	variation -25 %
Impact strength at -15 C	IEC 811-1-4	Pass
Aged IRM 902 oil (24 hrs at 100 C)		
- Variation from original tensile strength	CEI 20-34	variation -19 %
- Variation from original elongation	CEI 20-34	variation -12 %
Hot-set elongation (after radiation with 150 kGy)		
(200 C, 15 min, 20 N/cm ²) : - under load		5%
- set		2%

(*) : Properties after crosslinking 150 kGy. By varying the dose, some of the properties can be adapted. Tests at several dosis are recommended to find the optimum for each application. Properties as shown in this datasheet are preliminary only.

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Properties (*)	Test Method	Typical value
<i>Electrical properties</i>		
Volume resistivity AC 1.5 kV; 1 minute	ASTM D-257 UL	5 x 10@13 ohm.cm Pass
<i>Burning properties</i>		
Burning test	IEC 60-332-3 C	Pass
Halogen content	IEC 754-1	0
Smoke (Light transmission)	IEC 61034	> 60%
Limited oxygen index	ASTM D-2863	38
Temperature index	NES 715	275
Toxicity index	NES 713	1
Corrosivity test : pH	IEC 754-2	4.7
: conductivity	IEC 754-2	4 uS/mm

Extrusion guide for compound RDX HSC-2

Screw	Good results have been achieved with screws designed to process LSFOH compounds. Shear should be kept as low as possible. Low compression is preferred.
Screw cooling	For high line speeds, cooling the screw to around 100 C can be effective, although this could lead to pulsations.
Screen pack	A screen pack as well as a breakerplate is not recommended to avoid excessive shear.
Swell	It is recommended to undersize the dies by a few % on the nominal diameter of the wire or cable.
Extrusion dies	For pressure extrusion, normal dies are recommended. Too small clearance may result in excessive pressure and a 'rough' surface. Too large clearance could result in diameter fluctuations. Die angles are not very critical.
Draw down	A draw down ratio below 1:2 is recommended.
Temp. profile	Zone 1 to 4 : 150 - 155 - 160 - 165 Head : 165 Die : 165 (C)
Max. temp.	180 C

(*) Properties after crosslinking with 150 kGy. By varying the dose, some of the properties can be adapted. Tests at several dosis are recommended to find the optimum for each application. Properties as shown in this datasheet are preliminary only.

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