











Radiation cross-linkable halogen-free, flame retardant insulation and sheathing compound.

<p>■ Compound class Insulation / sheathing</p>	<p>■ Compound category </p>	<p>■ Flame retardant ATH</p>
<p>■ Standards UL 1277 Oil Res II</p>	<p>IEEE1202 / CSA FT-4</p>	
<p>■ Operating temperature [C°] -40 to 125</p>	<p>■ Oil resistance level ★★★★</p>	
<p>■ Typical applications <i>The RDX 20521 compound is very low temperature resistant to – 40°C and IRM 902 & IRM 903 oil resistant</i></p>		
 <p>General Applications</p>	 <p>Aerospace, Marine, Defence</p>	
<p>■ Features</p>		
 Flame retardant	 Halogen-free	 Low smoke
 Oil resistant	 High temperature resistant	 Flexible
 Flexible at low temperatures		

PHYSICAL PROPERTIES

Physical properties	Unit	Typical value	Test method
Density*	g/cm ³	1.62	DIN EN ISO 1183-1A
Hardness*	Shore A	87	DIN ISO 48-4
Melt Flow Index (175°C; 21,6kg)	g/10 min	7.0	DIN EN ISO 1133

MECHANICAL PROPERTIES

Thermoplastic / before crosslinking **	Unit	Typical value	Test method
Tensile strength	N/mm ²	>9.0	IEC 60811-501
Elongation at break	%	>200	IEC 60811-501
After crosslinking ***	Unit	Typical value	Test method
Tensile strength (75kGy)	N/mm ²	>12.0	IEC 60811-501
Elongation at break (75kGy)	%	>180	IEC 60811-501

■ After ageing in air oven 240h at 120°C***	Unit	Typical value	Test method
Variation in tensile strength	%	<25	IEC 60811-401
Variation in elongation at break	%	<25	IEC 60811-401

THERMAL PROPERTIES***

■ Low temperature tests	Unit	Typical value	Test method
Low temp flexibility winding on mandrel @ - 40°C	-	No cracks	IEC 60811-506
Elongation at break at -40°C	%	>35	IEC 60811-505
■ Heat tests	Unit	Typical value	Test method
Penetration 4h at 140°C	%	<50	IEC 60811-508
Shrinkage test 1h at 120°C	%	<2	IEC 60811-502
■ Hot set test at 200°C / 15min / 0,2MPa	Unit	Typical value	Test method
Elongation under load	%	<40	IEC 60811-507
Residual elongation	%	< 10	IEC 60811-507

ELECTRICAL PROPERTIES*

■ Major electrical properties	Unit	Typical value	Test method
Electrical breakdown	-	No breakdown	EN 50264
Volume resistivity (at 23°C)	Ω cm	≥10 ¹⁰	IEC 60093

RESISTANCE***

■ Fluid IRM 902 72h at 100°C	Unit	Typical value	Test method
Variation in tensile strength	%	<30	IEC 60811-404
Variation in elongation at break	%	<40	IEC 60811-404
■ Fluid IRM 902 60d at 75°C	Unit	Typical value	Test method
Variation in tensile strength	%	<35	IEC 60811-404
Variation in elongation at break	%	<35	IEC 60811-404
■ Fluid IRM 903 168h at 70°C	Unit	Typical value	Test method
Variation in tensile strength	%	<30	IEC 60811-404
Variation in elongation at break	%	<40	IEC 60811-404
■ Ozone resistance	Unit	Typical value	Test method
Method A 250ppm – 24h at 25°C	-	No cracks	EN 50305
Method B 200ppm – 72h at 40°C	-	No cracks	EN 50305

BURNING PROPERTIES*

■ Main burning properties	Unit	Typical value	Test method
LOI	%	45	ASTM D 2863 A
Halogen content	%	0	IEC 754-1
Burning test (vertical)	mm	<540	EN 60332-1-2
Temperature index	°C	330	ASTM D 2863 D
Toxicity index	-	2	EN 50305



■ Acid gas emission	Unit	Typical value	Test method
Corrosivity: pH (min.)	-	>4.5	IEC 60754-2
Conductivity (max.)	μS/mm	<4.0	IEC 60754-2

- * pressed plaques
- ** extruded tapes
- *** cross-linked plaques or tapes

PROCESSING GUIDE

■ **Extruder type**

Standard extruders for elastomeric or thermoplastic materials.

■ **Screw configuration**

Good results have been achieved with ‘halogen-free’ screws, and barrier type screws (BM) having high flights and a L/D-ratio > 24:1. Screws having low shear are recommended.

■ **Extrusion dies**

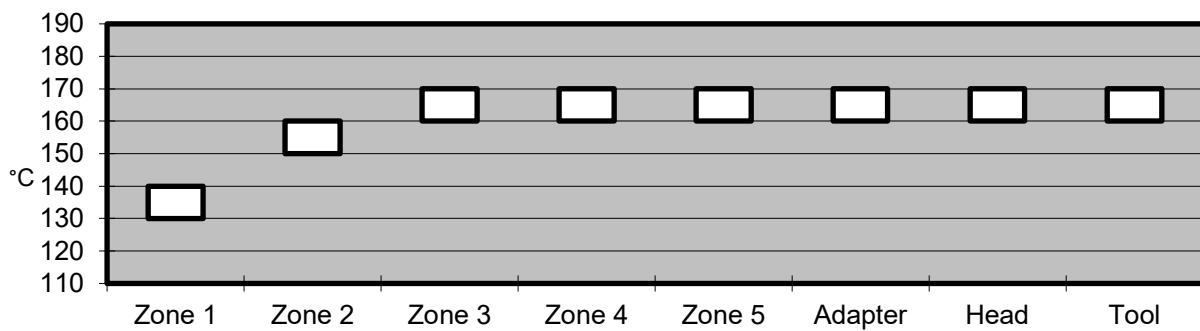
For pressure extrusion, normal dies are recommended.

■ **Die opening**

Die opening should be 1 – 5% below the required OD of the wire.

■ **Temperature profile extruder**

The profile shown below may vary slightly depending on extruder type, head design & output.



■ **Maximum mass temperature**

170°C

■ **Drying**

Pre-dry the compound 4 hrs at 60°C. Dry air, which has been dried by a desiccant air-dryer' should be used.

■ **Recommended colour master batches**

Well dispersed EVA master batch 0,5-1,0%. For black jacket applications, UV resistance can be obtained by adding a higher level of master batch depending on requirements and type of carbon black master batch used.

CROSSLINKING INFORMATION

■ **Recommended radiation dose**

75-100 kGy

■ **Radiation information**

75 kGy is a good starting point. This can be optimized by customer for maximum result.

STORAGE INFORMATION

■ **Form & packaging**

Pellets in sizes 2.8mm
Moisture-resistant bags (25kg) & octabins (alu-innerliner, max. 1250kg)

■ **Shelf life**

1 year after production

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