





















## Halogen-free, radiation cross-linkable, flame retardant compound

<p>■ <b>Compound class</b> Insulation</p>	<p>■ <b>Compound category</b> </p>	<p>■ <b>Flame retardant</b> ATH</p>						
<p>■ <b>Standards</b> EN 50264-1 EI 105 and EI 110</p>	<p>■ <b>Oil resistance level</b> ★</p>							
<p>■ <b>Operating temperature [C°]</b> -40 to 125</p>								
<p>■ <b>Typical applications</b> <i>Radiation cross-linkable halogen-free, low smoke compound, offering excellent mechanical and electrical properties. The compound is made to meet EN 50264-1 EI 105 and EI 110 requirements.</i></p>								
 <p>Rolling Stock, Rapid Transit, Railways</p>								
<p>■ <b>Features</b></p> <table border="0"> <tr> <td> Flame retardant</td> <td> Halogen-free</td> <td> Low smoke</td> </tr> <tr> <td> High temperature resistant</td> <td> Flexible</td> <td> Flexible at low temperatures</td> </tr> </table>			 Flame retardant	 Halogen-free	 Low smoke	 High temperature resistant	 Flexible	 Flexible at low temperatures
 Flame retardant	 Halogen-free	 Low smoke						
 High temperature resistant	 Flexible	 Flexible at low temperatures						

## PHYSICAL PROPERTIES

■ Physical properties	Unit	Typical value	Test method
Density*	g/cm <sup>3</sup>	<b>1.50</b>	DIN EN ISO 1183-1A
Hardness*	Shore D	<b>49</b>	DIN ISO 48-4
Melt Flow Index (170°C; 21,6kg)	g/10 min	<b>22</b>	DIN EN ISO 1133

## MECHANICAL PROPERTIES\*\*

■ Thermoplastic / before crosslinking	Unit	Typical value	Test method
Tensile strength	N/mm <sup>2</sup>	<b>&gt;10</b>	IEC 60811-501
Elongation at break	%	<b>&gt;200</b>	IEC 60811-501
■ After crosslinking ***	Unit	Typical value	Test method
Tensile strength (175kGy)	N/mm <sup>2</sup>	<b>14</b>	IEC 60811-501
Elongation at break (175kGy)	%	<b>220</b>	IEC 60811-501
■ After ageing in air oven 240h at 120°C**/*	Unit	Typical value	Test method
Variation in tensile strength	%	<b>&lt;25</b>	IEC 60811-401
Variation in elongation at break	%	<b>&lt;25</b>	IEC 60811-401

## THERMAL PROPERTIES\*\*\*

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

## ELECTRICAL PROPERTIES\*

■ Major electrical properties	Unit	Typical value	Test method
Electrical breakdown	-	<b>No breakdown</b>	EN 50264
Volume resistivity (at 23°C)	Ω cm	<b>10<sup>14</sup></b>	IEC 60093
Volume resistivity (at 90°C)	Ω cm	<b>&gt; 10<sup>11</sup></b>	IEC 60093

## RESISTANCE\*\*\*

■ Ozone resistance	Unit	Typical value	Test method
Method A 250ppm – 24h at 25°C		<b>No cracks</b>	EN 50305
Method B 200ppm – 72h at 40°C		<b>No cracks</b>	EN 50305

## BURNING PROPERTIES\*

■ Main burning properties	Unit	Typical value	Test method
LOI	%	<b>32</b>	ASTM D 2863 A
Halogen content	%	<b>0</b>	IEC 754-1
Temperature index	°C	<b>250</b>	ASTM D 2863 D
Toxicity index	-	<b>2</b>	EN 50305
■ Acid gas emission	Unit	Typical value	Test method
Corrosivity: pH (min.)	-	<b>&gt;4.5</b>	IEC 60754-2
Conductivity (max.)	μS/mm	<b>&lt;4</b>	EN 50267-2-2

\* pressed plaques

\*\* extruded tapes

\*\*\* cross-linked plaques or tapes

## PROCESSING GUIDE

■ **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

■ **Screw cooling**

For increase of line speeds, cooling the screw to around 80°C could be effective, although this could lead to pulsation.

■ **Screen pack**

40-60-40 mesh

■ **Extrusion dies**

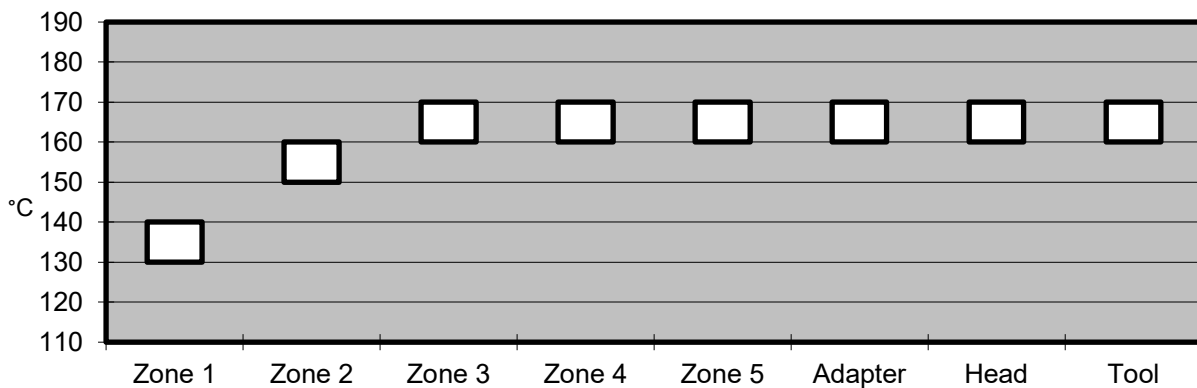
For pressure extrusion, normal dies are recommended. Use of semi-pressure tooling may improve low temperature flexibility properties

■ **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

■ **Wire/conductor**

Tin-plated. Concentric conductors are required for optimum abrasion resistance and low temperature flexibility.

■ **Drying**

Pre-drying of Mecoline Compounds is normally not necessary provided that the compound has been stored in the original sealed bags under cool (max. 30°C) and dry conditions. Mecoline compounds used from open bags require pre-drying during 4–6 hours at 60–70°C.

■ **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

■ <b>Recommended radiation dose</b>	150-200 kGy
■ <b>Radiation information</b>	<p>If the RDX 2264-1 is used as single layer only, we recommend to irradiate with approx. 175 kGy to achieve a hot-set-elongation (under load at 200°C and 20 N/cm<sup>2</sup>) of maximum 50%.</p> <p>Should the RDX 2264-1 be used as primary insulation in a (co-extruded) dual wall construction with RDX 2264-3 as secondary insulation (=sheath) it is suggested to crosslink this dual wall construction in one step only with approx. 150 kGy. In this way the RDX 2264-1 will be slightly under cross-linked and the RDX 2264-3 will be slightly over-crosslinked.</p>
■ <b>Dual wall constructions</b>	<p>In dual-wall constructions, where RDX 2264-1 is used as the primary insulation and the RDX 2264-3 as secondary insulation (to achieve Oil and fuel resistance), the adherence of the 2 insulation-layers is moderate, due to the difference in polarity of the 2 compounds.</p>

## STORAGE INFORMATION

■ <b>Form &amp; packaging</b>	<p>Pellets in sizes 2.8mm, PE-bags (25 kg), Octabins (1.000kg) Moisture-resistant bags (25kg) &amp; octabins (alu-innerliner, max. 1250kg)</p>
■ <b>Shelf life</b>	1 year after production

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