



























Radiation cross-linkable non-halogen flame retardant polyolefin compound

<p>■ Compound class Insulation</p> <p>■ Standards SAE J1128 GXL SAE J1128 SXL SAE J1128 TXL JASO D608 AESSXF</p> <p>■ Operating temperature [C°] -50 to 125</p>	<p>■ Compound category </p> <p>SAE J1127 SGX SAE J1127 STX HMC ES 91110-05 JASO D608 AEXF</p> <p>■ Oil resistance level ★★★</p>	<p>■ Flame retardant ATH</p>									
<p>■ Typical applications <i>An e-beam radiation cross-linkable, halogen-free low smoke compound, offering good mechanical and electrical properties.</i></p>											
											
<p>Automotive</p>											
<p>■ Features</p> <table border="0"> <tr> <td> Flame retardant</td> <td> Halogen-free</td> <td> Low smoke</td> </tr> <tr> <td> Oil resistant</td> <td> Abrasion resistant</td> <td> High temperature resistant</td> </tr> <tr> <td> Flexible</td> <td> Flexible at low temperatures</td> <td></td> </tr> </table>			 Flame retardant	 Halogen-free	 Low smoke	 Oil resistant	 Abrasion resistant	 High temperature resistant	 Flexible	 Flexible at low temperatures	
 Flame retardant	 Halogen-free	 Low smoke									
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PHYSICAL PROPERTIES

■ Physical properties	Unit	Typical value	Test method
Density*	g/cm ³	1.37	DIN EN ISO 1183-1A
Hardness*	Shore D	52	DIN ISO 48-4
Melt Flow Index (150°C; 10kg)	g/10 min	3	DIN EN ISO 1133

MECHANICAL PROPERTIES

■ Before crosslinking **	Unit	Typical value	Test method
Tensile strength	N/mm ²	>10	IEC 60811-501
Elongation at break	%	>230	IEC 60811-501
■ After crosslinking ***	Unit	Typical value	Test method
Tensile strength (50kGy)	N/mm ²	15	IEC 60811-501
Elongation at break (50kGy)	%	200	IEC 60811-501
■ After ageing in air oven 240h at 160°C ***	Unit	Typical value	Test method
No electrical breakdown after winding	-	Pass	HMC ES 91110-05

THERMAL PROPERTIES***

■ Low temperature tests	Unit	Typical value	Test method
Cold bend test (winding after 3hr at -40°C)	-	No cracks	HMC ES 91110-05
■ Heat tests	Unit	Typical value	Test method
Thermal overload (30 minutes @ 200°C)	-	No breakdown	HMC ES 91110-05
Thermal shrinkage (1hr @ 100°C)	%	<0.5	HMC ES 91110-05
■ Hot set test at 200°C / 15min / 0,2MPa	Unit	Typical value	Test method
Elongation under load	%	20	IEC 60811-507
Residual elongation	%	10	IEC 60811-507

ELECTRICAL PROPERTIES*

■ Major electrical properties	Unit	Typical value	Test method
Insulation Volume resistivity (1h at 70°C)	MΩ mm	10 ⁷	HMC ES 91110-05
High voltage test (1min at 1kV)	-	No breakdown	HMC ES 91110-05

BURNING PROPERTIES*

■ Main burning properties	Unit	Typical value	Test method
LOI	%	27	ASTM D 2863 A
Halogen content	%	0	IEC 754-1
Toxicity index	-	<3	NES 713
Flame test	seconds	<15	HMC ES 91110-05
■ Acid gas emission	Unit	Typical value	Test method
Corrosivity: pH (min.)	-	>4.7	IEC 60754-2
Conductivity (max.)	µS/mm	<2	IEC 60754-2

* pressed plaques

** extruded tapes

*** cross-linked plaques or tapes

PROCESSING GUIDE

■ **Screw configuration**

Good results have been achieved with “halogen-free” screws and screws with mixing zones. L/D ratio: 24 – 26; Compression ratio between 1:1.2 and 1:1.4 to avoid excessive heat. Also “soft” PVC screws can be used in some cases.

■ **Screw cooling**

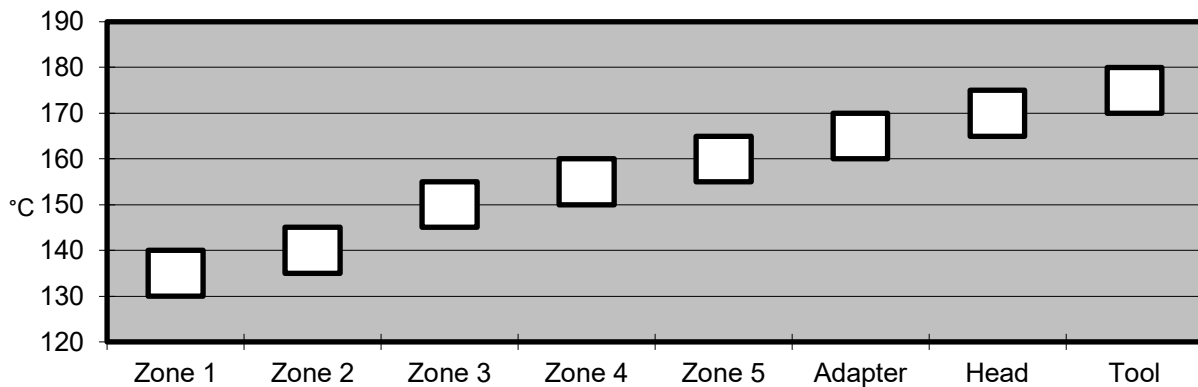
For high line speeds, cooling the screw could be effective, although this could lead to pulsation.

■ **Extrusion dies**

Little or no die land.

■ **Temperature profile extruder**

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



■ **Maximum mass temperature**

180°C

■ **Conductor pre-heating**

Pre-heating between 100-120°C is needed to achieve maximum properties of elongation at break of the insulation.

■ **Wire/conductor**

Bare copper / Tin-coated

■ **Quenching**

Quenching in a hot water bath (60-80°C) is recommended to improve elongation at break.

■ **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 PE 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** 50-75 kGy

STORAGE INFORMATION

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

■ **Shelf life** 1 year after production

Note: The information given in this datasheet is believed to be accurate and reliable. However, no warranty, express or implied, or guarantee is given as to the suitability, accuracy, reliability or completeness of the information. This information does not hold us liable for damages or penalties resulting from following our suggestions or recommendations.

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