









Radiation cross-linkable, flame retardant insulation compound.

<p>■ Compound class Insulation</p>	<p>■ Compound category </p>	<p>■ Flame retardant Halogenated</p>
<p>■ Standards Chrysler MS 9502A; MS 9502B SAE J-1128 TXL, GXL and SXL Ford ES-AU5T-1A348-AA</p>	<p>LV 112 Class C LV 112 Class D</p>	<p>ISO 6722 Class C ISO 6722 Class D</p>
<p>■ Operating temperature [C°] -55 to 150</p>	<p>■ Oil resistance level ★★★★★</p>	
<p>■ Typical applications <i>A high performance radiation cross-linkable compound, offering excellent mechanical and electrical properties</i></p>		
		
Automotive	General Applications	
<p>■ Features</p>		
 Flame retardant	 High temperature resistant	 Oil resistant
 Low smoke	 Abrasion resistant	

PHYSICAL PROPERTIES

Physical properties	Unit	Typical value	Test method
Density*	g/cm ³	1,19	DIN EN ISO 1183-1A
Hardness*	Shore D	54	DIN ISO 48-4
Melt Flow Index (190°C; 21,6kg)	g/10 min	0,6	DIN EN ISO 1133
Abrasion*	mm	1900	MS 9502B

MECHANICAL PROPERTIES

Before cross-linking **	Unit	Typical value	Test method
Tensile strength	N/mm ²	> 10	IEC 60811-501
Elongation at break	%	> 600	IEC 60811-501
After cross-linking ***	Unit	Typical value	Test method
Tensile strength (120kGy)	N/mm ²	20	IEC 60811-501
Elongation at break (120kGy)	%	250	IEC 60811-501
Tear strength (120kGy)	Lbs/inch	400	MS 9502B

■ After ageing in air oven 240h at 180°C ***	Unit	Typical value	Test method
Variation in tensile strength	%	5	MS 9502B
■ After ageing in air oven 3000h at 150°C ***	Unit	Typical value	Test method
Variation in tensile strength	%	15	MS 9502B

Resistance ***

■ Engine oil (ASTM D471, IRM 902) 20h at 50°C	Unit	Typical value	Test method
O.D. Change	%	1	SAE J 1128
■ Gasoline (ASTM D471 Ref Fuel C) 20h at 23°C	Unit	Typical value	Test method
O.D. Change	%	2	SAE J 1128
■ Brake fluid (SAE-J-1703) 20h at 50°C	Unit	Typical value	Test method
O.D. Change	%	2	SAE J 1128
■ Ethanol (85% Ethanol, 15% ASTM D471) 20h at 23°C	Unit	Typical value	Test method
O.D. Change	%	2	SAE J 1128
■ Diesel Fuel (90% IRM 903 + 10% p-Xylene) 20h at 23°C	Unit	Typical value	Test method
O.D. Change	%	2	SAE J 1128
■ Power steering (ASTM D 471, IRM 903) 20h at 50°C	Unit	Typical value	Test method
O.D. Change	%	1	SAE J 1128
■ Auto transmission (Citgo # 33123) 20h at 50°C	Unit	Typical value	Test method
O.D. Change	%	3	SAE J 1128
■ Engine Coolant (50% Glycol + 50% water) 20h at 50°C	Unit	Typical value	Test method
O.D. Change	%	1	SAE J 1128
■ Battery acid (H2SO4, spec. Grav. 1.260) 20h at 23°C	Unit	Typical value	Test method
O.D. Change	%	1	SAE J 1128

BURNING PROPERTIES *

■ Main burning properties	Unit	Typical value	Test method
45 degree flame resistance test	Seconds	5	MS 9502 B

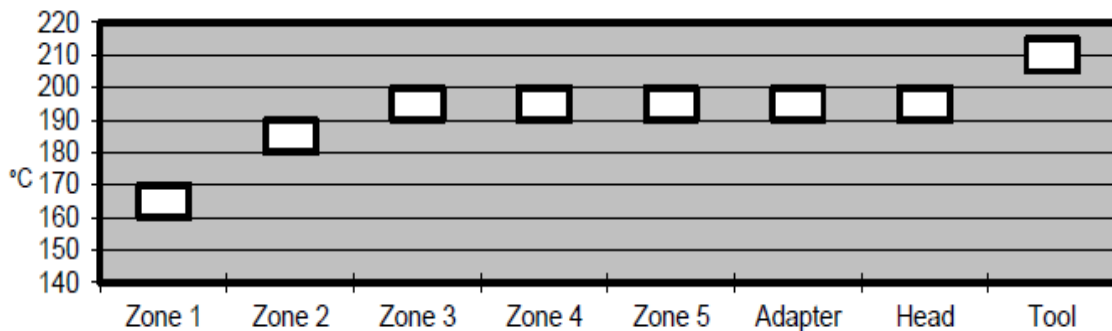
* pressed plaques

** extruded tapes

*** cross-linked plaques / tapes

PROCESSING GUIDE

<ul style="list-style-type: none"> ■ Extruder Type ■ Screw configuration ■ Screw cooling ■ Tooling 	<p>Standard extruders for elastomeric or thermoplastic materials.</p> <p>Barrier type screw (BM) having high flights and a L/D-ratio > 24:1</p> <p>Not required</p> <p>For insulation pressure tools, for jacketing tube tools are recommended. Note: Pressure Tooling may have an effect on low temperature flexibility.</p>
<ul style="list-style-type: none"> ■ Extrusion dies 	<p>For pressure extrusion, normal (single angle) dies are recommended. If strip force is too high, use a slightly larger die and switch to a 'draw down of the melt'. Also a reduction of head-pressure will reduce strip force.</p>
<ul style="list-style-type: none"> ■ Die opening 	<p>Approx. 0,5 - 3% above the required OD of the wire. It is required to DRAW DOWN the melt, to achieve good surface and moderate stripping force.</p>
<ul style="list-style-type: none"> ■ Temperature profile extruder 	<p>The profile shown below may vary slightly depending on extruder type, head design & output.</p>



<ul style="list-style-type: none"> ■ Maximum mass temperature 	<p>230°C</p>
<ul style="list-style-type: none"> ■ Conductor pre-heating 	<p>Pre-heating between 100°C-140°C to achieve maximum properties of elongation at break of the insulation.</p> <p>Target: Ensure to achieve an elongation at break of > 600% after extrusion</p> <p>to meet various properties such as low temperature flexibility, abrasion resistance and various others. A too low conductor pre-heating temperature may lead to inferior wire quality.</p>
<ul style="list-style-type: none"> ■ Wire/conductor 	<p>Bare copper for thicker wall products is OK.</p> <p>Tin plated conductors for wall thicknesses < 0,40 mm (16 mill) to meet class D</p>
<ul style="list-style-type: none"> ■ Drying 	<p>Not necessary if the compound has been stored in original packing under cool (max. 30°C) and dry conditions. Mecoline compounds used from open packing require pre-drying during 4–6 hours at 60–70°C.</p>

■ **Recommended colour master batches**

Well dispersed PE master batch 0,5-1,0%. For black jacket applications, UV resistance can be improved by adding more black master batch. This depends on requirements and type of carbon black master batch used

CROSS-LINKING INFORMATION

■ **Recommended radiation dose**

120 kGy

■ **Concentricity & Wall thickness**

To achieve highest possible abrasion resistance on the 0,35 mm² wires, ensure highest possible and allowed wall thickness and > 90 % concentricity to pass abrasion resistance and 3000 hrs @ 150°C ageing on bare copper.

■ **Elongation at break after cross-linking**

If the elongation at break after crosslinking/irradiation is low, annealing the complete insulated wire at temperatures of 150 Celsius during a few hours (to ensure that the insulated wires, which are positioned close to the core of the cable-drum, also reach 150 C) will increase elongation at break, provided that the cable-drum, incl. insulated wires, will cool down in a slow and gentle way.

STORAGE INFORMATION

■ **Form & packaging**

Pellets in sizes 2.8mm & 5.5mm
Moisture-resistant bags (25kg) & octabins (alu-innerliner, max. 1250kg)

■ **Shelf life**

1 year after date of manufacturing

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.