



Radiation cross-linkable polyalkene compound





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|--|---|---|
| <p>■ Compound class Insulation</p> | <p>■ Compound category </p> | <p>■ Flame retardant Not flame retardant</p> |
| <p>■ Standards SAE AS-81044/9 SAE AS-81044/12</p> | <p>SAE AS 81044/11</p> | <p>NEMA WC 27500</p> |
| <p>■ Operating temperature [C°] -50 to 150</p> | <p>■ Oil resistance level ★</p> | |

■ **Typical applications**
This compound is an excellent choice for manufacturing insulated hook-up wires in military and aerospace industries (airframe wire) and component conductors for NEMA WC 275000 cables.



Marine, Aerospace, Defence

■ **Features**

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|--|---|--|
|  Low smoke |  Oil resistant |  Abrasion resistant |
|  High temperature resistant | | |

PHYSICAL PROPERTIES

| Physical properties | Unit | Typical value | Test method |
|---------------------------------|-------------------|---------------|--------------------|
| Density* | g/cm ³ | 1.05 | DIN EN ISO 1183-1A |
| Hardness* | Shore D | 60 | DIN ISO 48-4 |
| Melt Flow Index (190°C; 21,6kg) | g/10 min | 12 | DIN EN ISO 1133 |

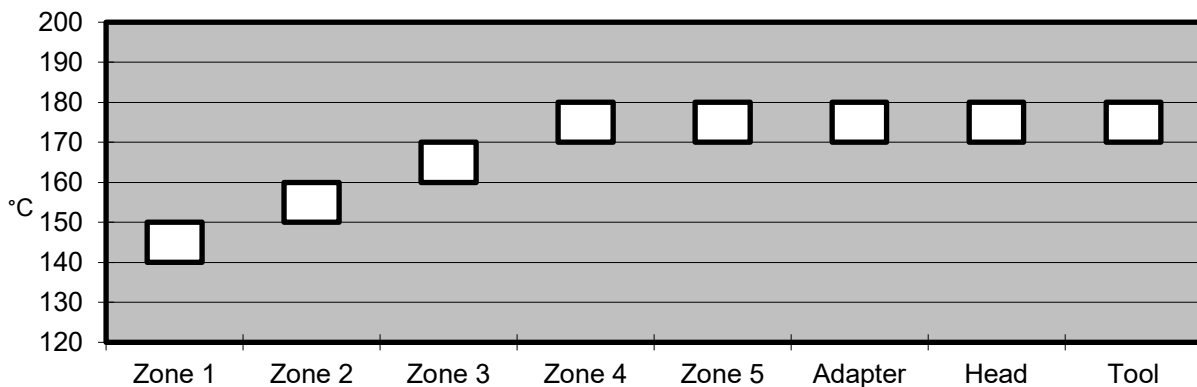
MECHANICAL PROPERTIES

| Before crosslinking ** | Unit | Typical value | Test method |
|------------------------------|-------------------|----------------|---------------|
| Tensile strength | N/mm ² | >30 | IEC 60811-501 |
| Elongation at break | % | >700 | IEC 60811-501 |
| After crosslinking *** | Unit | Typical value | Test method |
| Tensile strength (250kGy) | N/mm ² | >20 | IEC 60811-501 |
| Elongation at break (250kGy) | % | >400 | IEC 60811-501 |

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

Processing Guide

| | |
|--------------------------------|---|
| ■ Extruder type | Small extruder, like 30 mm |
| ■ Screw configuration | L/D 25 – 30 (to avoid long residence time and thus degradation of the polymers) |
| ■ Screw cooling | 80°C |
| ■ Tooling | Outer Die approx. 1 - 3% smaller than the required OD of the wire. If Outer Die is too small, you may get fluctuations in the OD of the wire (wavy surface). If Outer Die is too big this may result in a rough surface For a 0.35mm ² wire, with a specified OD of 1.28 mm, the Outer Die had an ID of 1.25 mm (Rough surface already occurred with Outer Die having an ID of 1.28 mm). |
| ■ Extrusion dies | See above |
| ■ Die opening | See above |
| ■ 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 140°C-160°C to achieve maximum properties of elongation at break of the insulation. |
| ■ Wire/conductor | This usually will result in an elongation at break > 600%. An optimum pre-heating temperature should be found for each size and extruder set-up. Use tin-plated wire (extra thick coating, as mentioned elsewhere in the guidance). Note: Without wire pre-heating an elongation of break < 100% will be the result. Wire pre-heating of 110°C may result in an elongation at break of approx. 400%. Aim at > 600%. |
| ■ Quenching | Cooling in first compartment of the water cooling system: 80°C-85°C (typically 3 – 5 m length). Also without 'hot water cooling', but with air-cooling, good results have been achieved, but is not recommended. |

■ **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.

■ **Remark**

It is absolutely necessary to measure the elongation at break after extrusion to find the optimum extrusion line setting. Each new setting (speed, temperature, tools, conductor pre-heating) may have considerable effect on the elongation at break after extrusion. An elongation at break close to 600%, preferably > 600% is recommended to achieve best results.

Crosslinking information

■ **Recommended radiation dose**

250 kGy

Storage information

■ **Form & packaging**

Pellets in sizes 3mm, Octabins (250-500kg)

■ **Shelf life**

1 year after production

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