# AEI SX-0610:CM601

Crosslinked Polyethylene

AEI Compounds Limited

## Message:

Low smoke, low-toxicity, halogen-free, flame-retardant compound for insulation of LV cables and sheathing of all types of cables
This is a low smoke, low fume, fire retardant silane crosslinkable compound, which can be processed like a thermoplastic material at high output rates. The crosslinking catalyst masterbatch CM601 is mixed with the SX-0610 graft component at an addition rate of between 5 and 10%, the rate dependent upon the extruder residence time.
The compound combines good mechanical, electrical and fire retardant properties to meet demanding insulation specifications such as BS7211 and IEC 60092-351/HF90. This compound can also be used for sheathing of cables which require high levels of fire retardance.

| General Information | | | |
|---|---|---|---|
| Features | Irritant gas low to no<br>Low smoke<br>Low toxicity<br>Crosslinkable<br>Halogen-free<br>Flame retardancy | | |
| Uses | Flame Retardant Insulation<br>Flame Retardant Jacketing<br>Low voltage insulation<br>Cable sheath<br>Wire and cable applications | | |
| Agency Ratings | BS 7211<br>EC 1907/2006 (REACH)<br>IEC 60092 351/HF90 | | |
| RoHS Compliance | RoHS compliance | | |
| Forms | Particle | | |
| Processing Method | Extrusion | | |
| **Physical** | **Nominal Value** | **Unit** | **Test Method** |
| Density | 1.47 | g/cm³ | BS 2782 620A |
| Melt Mass-Flow Rate (MFR) (150°C/21.6 kg) | 8.0 | g/10 min | Internal method |
| **Mechanical** | **Nominal Value** | **Unit** | **Test Method** |
| Tensile Stress | 13.0 | MPa | IEC 60811-1-1 |
| Tensile Strain (Break) | 160 | % | IEC 60811-1-1 |
| **Aging** | **Nominal Value** | **Unit** | **Test Method** |
| Change in Tensile Strength (135°C, 168 hr) | 5.0 | % | IEC 60811-1-2 |

| | | | |
|---|---|---|---|
| Change in Tensile Strain at Break (135°C, 168 hr) | -10 | % | IEC 60811-1-2 |
| **Thermal** | **Nominal Value** | **Unit** | **Test Method** |
| Deformation (100°C) | 40 | % | IEC 60811-3-1 |
| Thermoset [1] | | | IEC 60811-2-1 |
| Elongation under load, 20N/cm² : 200°C | 50 | % | IEC 60811-2-1 |
| Permanent elongation after cooling | 0.0 | % | IEC 60811-2-1 |
| Temperature index | 245 | °C | ISO 4589-3 |
| Conduction rate-of gases | 13.0 | μS/cm | IEC 60754-2 |
| Insulation resistance (90°C) | 5.0E+9 | ohms·cm | IEC 60502 |
| Insulation resistance constant-(K)(90°C) | 1.5 | Mohms·km | IEC 60502 |
| Corrosive gases in flue gas-pH | 4.60 | | IEC 60754-2 |
| Smoke Density | | % | ASTM D2843 |
| Halogen Acid Gas Evolution | | % | IEC 60754-1 |
| Head Temperature | 160 | °C | |
| **Electrical** | **Nominal Value** | **Unit** | **Test Method** |
| Volume Resistivity (90°C) | 4.4E+12 | ohms·cm | IEC 60502 |
| **Flammability** | **Nominal Value** | **Unit** | **Test Method** |
| Oxygen Index | 29 | % | ISO 4589-2 |
| **Additional Information** | **Nominal Value** | **Unit** | **Test Method** |

Crosslinking or Cure: A satisfactory cure can be obtained either by immersion in hot water or exposure to low pressure steam at a temperature up to 70°C. At the higher 10% addition levels of CM601 catalyst and under the correct conditions a satisfactory cure is possible at ambient temperature and humidity.

| **Extrusion** | **Nominal Value** | **Unit** |
|---|---|---|
| Cylinder Zone 1 Temp. | 130 | °C |
| Cylinder Zone 2 Temp. | 140 | °C |
| Cylinder Zone 3 Temp. | 145 | °C |
| Cylinder Zone 4 Temp. | 150 | °C |
| Melt Temperature | < 160 | °C |
| Die Temperature | 160 | °C |

**Extrusion instructions**

Many modern thermoplastic extruders will process the material, although a screw designed to give good homogenisation without excessive shear (which could cause unacceptable increases in melt temperature) should be used. An extruder with an L/D ratio (length/diameter) of 15-24 and an extruder screw with a compression ratio 1.2:1 are recommended.

**NOTE**

| | |
|---|---|
| 1. | Cure assessment by hot set test (forced cured at 80°C in water) |



Recommended distributors for this material

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