# Borealis FR4810 Low Smoke Zero Halogen Flame Retardant Jacketing Compound

**Category :** Polymer , Thermoplastic , Polyethylene (PE)

**Material Notes:**

FR4810 is a thermoplastic, low smoke zero halogen (LSZH) flame retardant, black jacketing compound combining with flexibility and exceptional fluid resistance. The composition is based on the elements Carbon, Hydrogen, Oxygen, Silicon and Magnesium. Compounds based on these elements will therefore be the only significant constituents of the combustion fumes. Other elements may be present in concentrations less than 0.1%. Its excellent flame retardancy is achieved by an inorganic filler and a novel char-forming additive. Applications: 90°C rated jacket for energy cables with high flame retardancy required. The high operating temperatures and durability (abrasion resistance, hardness) of FR4810 makes it an attractive solution for energy cables installed in industrial areas, tunnels, ducts The ability of this compound to be used for both internal and external applications is valuable as it avoids the requirement of cable splicing at building service entrances. It can be used in areas sensitive to smoke or corrosive and toxic combustion products. In general, FR4810 has sufficient flame retardancy to satisfy bunched cable vertical burning tests. Specifications: FR4810 meets the applicable requirements as below when processed using sound extrusion practice and testing procedure: BS 6724, BS 7655, and LTS2VDE 0207 Teil 24 (HM4)Information provided by Borealis AG

Order this product through the following link:
http://www.lookpolymers.com/polymer_Borealis-FR4810-Low-Smoke-Zero-Halogen-Flame-Retardant-Jacketing-Compound.php

| Physical Properties | Metric | English | Comments |
|---|---|---|---|
| Density | 1.27 g/cc | 0.0459 lb/in³ | ISO 1872-2/ISO 1183 |
| Water Absorption | 0.063 %<br>@Temperature 70.0 °C, Time 1.21e+6 sec | 0.063 %<br>@Temperature 158 °F, Time 336 hour | |
| Environmental Stress Crack Resistance | >= 1.0 hour<br>@Temperature 50.0 °C | >= 1.0 hour<br>@Temperature 122 °F | Igepal 10%;F20; IEC 60811-4-1/B |
| Melt Flow | 0.10 g/10 min<br>@Load 2.16 kg, Temperature 190 °C | 0.10 g/10 min<br>@Load 4.76 lb, Temperature 374 °F | ISO 1133 |

| Mechanical Properties | Metric | English | Comments |
|---|---|---|---|
| Hardness, Shore D | 48 | 48 | 15s; ISO 868 |
| Tensile Strength at Break | 2.20 MPa | 319 psi | after aging, 240h, 100°C; IEC 60811-1-2 |
| | 11.0 MPa | 1600 psi | 50mm/min; IEC 60811-1-1 |
| Elongation at Break | 500 % | 500 % | IEC 60811-1-1 |
| Flexural Modulus | 0.200 GPa | 29.0 ksi | ISO 178 |

| Thermal Properties | Metric | English | Comments |
|---|---|---|---|
| Maximum Service Temperature, Air | 250 °C | 482 °F | ISO 4589-3 |
| Brittleness Temperature | <= -35.0 °C | <= -31.0 °F | ASTM D746 |
| Oxygen Index | 35 % | 35 % | ASTM D2863 |

| Electrical Properties | Metric | English | Comments |
|---|---|---|---|
| Volume Resistivity | 500000 ohm-cm | 500000 ohm-cm | IEC 60093 |
| Dielectric Strength | >= 20.0 kV/mm | >= 508 kV/in | IEC 60243 |

| Descriptive Properties | Value | Comments |
|---|---|---|
| Average Heat Release, kW/m2 | 152 | ISO 5660; Cone Calorimeter (heat flux 35 kW/m<sup>2</sup>, 3mm plaque |
| CO, kg/dm3 | 1.71 | ISO 5660; Cone Calorimeter (heat flux 35 kW/m<sup>2</sup>, 3mm plaque |
| CO2, kg/dm3 | 0.011 | ISO 5660; Cone Calorimeter (heat flux 35 kW/m<sup>2</sup>, 3mm plaque |
| Heat Combustion, MJ/dm3 | 27 | ISO 5660; Cone Calorimeter (heat flux 35 kW/m<sup>2</sup>, 3mm plaque |
| High Temperature Pressure Test, % | 0.2 | 90°C;14 days;IEC 60811-3-1 |
| Ignition Time, sec | 105 | ISO 5660; Cone Calorimeter (heat flux 35 kW/m<sup>2</sup>, 3mm plaque |
| Max Heat Release, kW/m2 | 213 | ISO 5660; Cone Calorimeter (heat flux 35 kW/m<sup>2</sup>, 3mm plaque |
| Single Vertical Flame Test | Pass | VW-1;0.76mm |
| Smoke Index | 15 | NES 711 |
| Smoke Obscuration, m2/dmm3 | 297 | ISO 5660; Cone Calorimeter (heat flux 35 kW/m<sup>2</sup>, 3mm plaque |
| Toxicity Index | 2 | NES 713 |

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