## OVERVIEW

StressPly E (Environmental) membranes feature a unique combination of rubber-modified asphalt together with selected reinforcement layers. The result is a high-strength, puncture and fatigue resistant, rubber-modified membrane designed for use as the top component in a roofing system where fire retardancy is required. StressPly membranes are made up of Styrene-Butadiene-Styrene and Styrene-Isoprene-Styrene (SBS+SIS).These rubber-modified membranes utilize KEVLAR® fibers and a dual polyester and fiberglass combination reinforcement that offers the inherent strength and heat stability of fiberglass along with the ability of polyester to conform.

StressPly E membranes can also be used in conjunction with other HPR® products as well as with conventional glass base sheets or fiberglass roofing felts. In addition, StressPly E membranes can be used as the top ply in a two-ply flashing system. It can also be used to repair splits, cracks, and other deteriorated areas in existing asphalt-based roofing systems. Specifications are available for either hot or coldapplied systems. The StressPly E FR Mineral sheet can be upgraded with highly-reflective Sunburst™ minerals.

**Environmentally Friendly** – StressPly E membranes utilize post-consumer scrap from tires in the roofing compound. In addition, StressPly E utilizes recycled boiler slag as the surfacing in non-mineral membranes diverting materials away from landfills. StressPly E also incorporates soy-based products, reducings our reliance on petroleum-based technologies. With absolutely no sacrifice in quality, StressPly E membranes maintain Garland's reputation as a manufacturer of high-performance roofing systems while benefiting the environment.

**Unmatched Rubber Technology** – StressPly E membranes provide unmatched durability. The SBS rubber affords superior low temperature flexibility and long-term weathering characteristics. The SIS rubber dramatically increases the overall life expectancy of the modified membrane. When SBS and SIS are combined, the result is a superior high-performance roof membrane.

**Superior Strength** – The StressPly E membranes are reinforced with one layer of fiberglass and one layer of polyester. The superior strength provided by the KEVLAR® fibers and the dual fiberglass and polyester combination resists the movement created by today's modern buildings. In addition, StressPly E membranes provide tensile strength in excess of 500 pounds per inch in the machine and cross machine direction. This translates to long-term resistance to splits and tears in the completed StressPly E membrane roof system.

**Superior Fire Resistance** – StressPly E FR Mineral contains a fire retardant that is added to the compound during the manufacturing process. As a result, it will maintain its fire rating for the life of the membrane. StressPly E FR Mineral has a Class A fire rating over a combustible roof deck.

## APPLICATION

### Hot-Applied

StressPly E membranes can be used with ASTM D 312, Type III or IV asphalt, Garland's HPR All-Temp Asphalt or modified asphalt. One or two plies of ASTM D 2178, Type IV or VI fiberglass felt are solidly bonded to the approved substrate. The StressPly E membrane is then solidly bonded to these base layers with mopping asphalt.

### Cold-Applied

StressPly E membranes can also be applied in Garland's cold-applied Weatherking® and Green-Lock® membrane adhesive. One or two layers of Garland approved base sheets are applied in Weatherking or Green-Lock membrane adhesive to the approved substrate. The StressPly E membrane is then adhered to these base layers with Weatherking or Green-Lock membrane adhesive.

**STRESSPLY® E MEMBRANES**

# Cap Sheet
# StressPly E | Technical Data Sheet

since 1895

| Properties | | CSA A123.23 Criteria: Type C, Grade 1 | StressPly E Tested Value | |
|---|---|---|---|---|
| **Thickness** – mm (mils) | | 1.8 (70) | 3.1 (121) | |
| **Selvedge thickness** – mm (mils) | | 1.8 (70) | 2.9 (115) | |
| **Mass per unit area –** kg/m² (lbs/100 ft²) | | 2.2 (45) | 3.5 (72) | |
| **Back surface coating thickness** (only for heat-welded sheets), min. – mm (mils) | | 1.0 (40) | N/A | |
| | | | Before Heat Conditioning | After Heat Conditioning |
| **Strain energy** (before and after heat conditioning), min. – kN/m (lbf/in) | At 23 ± 2°C (73.4 ± 3.6°F) | 5.5 (31) | MD: 25 (141)<br>XMD: 37 (211) | MD: 13 (77)<br>XMD: 7 (42) |
| | At -18 ± 2°C (-4 ± 3.6°F) | 3.0 (17) | MD: 8.8 (50)<br>XMD: 7.2 (41) | MD: 9.5 (54)<br>XMD: 9.5 (54) |
| **Peak load** (before and after heat conditioning), min. – kN/m (lbf/in) | At 23 ± 2°C (73.4 ± 3.6°F) | See Tested Value | MD: 101 (574)<br>XMD: 94 (535) | MD: 57 (324)<br>XMD: 54 (308) |
| | At -18 ± 2°C (-4 ± 3.6°F) | See Tested Value | MD: 47 (267)<br>XMD: 53 (302) | MD: 58 (332)<br>XMD: 57 (325) |
| **Elongation at peak load** (before and after heat conditioning), % | At 23 ± 2°C (73.4 ± 3.6°F) | See Tested Value | MD: 12%<br>XMD: 20% | MD: 9%<br>XMD: 8% |
| | At -18 ± 2°C (-4 ± 3.6°F) | See Tested Value | MD: 7%<br>XMD: 8% | MD: 8%<br>XMD: 7% |
| **Ultimate elongation at 23 ± 2°C** (before and after heat conditioning), % | | See Tested Value | MD: 25%<br>XMD: 19% | MD: 13%<br>XMD: 8% |
| **Dimensional stability,** max., % | | 0.5% | 0.0% | |
| **Low temperature flexibility** (before and after heat conditioning), max. – °C (°F) | | -18 (-0.4) | MD: Pass @ -34 (-30)<br>XMD: Pass @ -34 (-30) | MD: Pass @ -18 (-0.4)<br>XMD: Pass @ -18 (-0.4) |
| **Low temperature flexibility after UV weathering** (Grades 1 and 2 only), max. – °C (°F) | | -12 (10) | MD: N/A<br>XMD: N/A | MD: Pass @ -12 (10)<br>XMD: Pass @ -12 (10) |
| **Compound stability,** min. – °C (°F) | | 91 (195) | Pass @ 91 (195) | |
| **Resistance to puncture** | | Pass | Pass | |
| **Granule embedment** (Grade 1 only), max. – g (oz) | | N/A | N/A | |
| **Moisture content,** max., % * | | N/A | N/A | |

* Applicable only for APP-modified membranes

This product meets the requirements of CSA 123.23.

For more information, visit us at: www.garlandco.com


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**STRESSPLY® E MEMBRANES**

# Cap Sheet
# StressPly E FR Mineral | Technical Data Sheet

since 1895

| Properties | | CSA A123.23 Criteria: Type C, Grade 1 | StressPly E FR Mineral Tested Value | |
|---|---|---|---|---|
| **Thickness** – mm (mils) | | 2.8 (110) | 4.0 (156) | |
| **Selvedge thickness** – mm (mils) | | 1.8 (70) | 3.6 (139) | |
| **Mass per unit area –** kg/m² (lbs/100 ft²) | | 2.9 (60) | 5.0 (103) | |
| **Back surface coating thickness** (only for heat-welded sheets), min. – mm (mils) | | N/A | N/A | |
| | | | Before Heat Conditioning | After Heat Conditioning |
| **Strain energy** (before and after heat conditioning), min. – kN/m (lbf/in) | At 23 ± 2°C (73.4 ± 3.6°F) | 5.5 (31) | MD: 35 (197)<br>XMD: 49 (276) | MD: 20 (113)<br>XMD: 20 (112) |
| | At -18 ± 2°C (-4 ± 3.6°F) | 3.0 (17) | MD: 10 (55)<br>XMD: 10 (54) | MD: 7 (40)<br>XMD: 7 (40) |
| **Peak load** (before and after heat conditioning), min. – kN/m (lbf/in) | At 23 ± 2°C (73.4 ± 3.6°F) | See Tested Value | MD: 92 (517)<br>XMD: 102 (579) | MD: 59 (332)<br>XMD: 57 (324) |
| | At -18 ± 2°C (-4 ± 3.6°F) | See Tested Value | MD: 56 (316)<br>XMD: 63 (357) | MD: 66 (376)<br>XMD: 61 (346) |
| **Elongation at peak load** (before and after heat conditioning), % | At 23 ± 2°C (73.4 ± 3.6°F) | See Tested Value | MD: 13%<br>XMD: 18% | MD: 6%<br>XMD: 6% |
| | At -18 ± 2°C (-4 ± 3.6°F) | See Tested Value | MD: 7%<br>XMD: 7% | MD: 6%<br>XMD: 6% |
| **Ultimate elongation at 23 ± 2°C** (before and after heat conditioning), % | | See Tested Value | MD: 40%<br>XMD: 41% | MD: 15%<br>XMD: 18% |
| **Dimensional stability,** max., % | | 0.5% | 0.0% | |
| **Low temperature flexibility** (before and after heat conditioning), max. – °C (°F) | | -18 (-0.4) | MD: Pass @ -40 (-40)<br>XMD: Pass @ -40 (-40) | MD: Pass @ -18 (-0.4)<br>XMD: Pass @ -18 (-0.4) |
| **Low temperature flexibility after UV weathering** (Grades 1 and 2 only), max. – °C (°F) | | -12 (10) | MD: N/A<br>XMD: N/A | MD: Pass @ -12 (10)<br>XMD: Pass @ -12 (10) |
| **Compound stability,** min. – °C (°F) | | 91 (195) | Pass @ 91 (195) | |
| **Resistance to puncture** | | Pass | Pass | |
| **Granule embedment** (Grade 1 only), max. – g (oz) | | 2.0 (0.07) | 1.12 (0.04) | |
| **Moisture content,** max., % * | | N/A | N/A | |

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