

## TECHNICAL DATA SHEET

HEATLOK SOY® 200 PLUS is a two component, closed cell, spray applied, rigid polyurethane foam system. This product uses recycled plastic materials, rapidly renewable soy oils, and the blowing agent has zero ozone depleting potential. HEATLOK SOY® 200 PLUS complies with the intent of the International Code Council's residential and commercial building codes and is commonly used as a thermal insulation, air barrier, vapor barrier and water resistive barrier in above grade, below grade, interior and exterior applications.

| Physical Properties |   |  |                               |
|---------------------|---|--|-------------------------------|
| ASTM D 1622         | Density   | 2.1 lb/ft <sup>3</sup>                     | 33.6 Kg/m <sup>3</sup>        |
| ASTM C 518          | Aged thermal resistance (R-Value @ 1 inch)<br>See ESR 3210, Table 1 for additional R-value information          | 7.4 ft <sup>2</sup> h <sup>2</sup> F/BTU   | 1.3 Km <sup>2</sup> /W        |
| ASTM E 283          | Air leakage @ 75 Pa @ 1"  | < 0.02 L/sm <sup>2</sup>                   |                               |
| ASTM E 2178         | Air permeance @ 75 Pa @ 1"  | < 0.02 L/sm <sup>2</sup>                   |                               |
| ASTM E 96           | Water vapor permeance @ 1.2"<br>(qualifies as a Class II vapor barrier per IBC Section 202, definitions @ 1.2") | < 1 perm                                   | < 57.2 ng/Pa*s*m <sup>2</sup> |
| ASTM D 1621         | Compressive strength  | 28.7 psi                                   | 198 kPa                       |
| ASTM D 1623         | Tensile strength  | 46.2 psi                                   | 319 kPa                       |
| ASTM D 2126         | Dimensional stability @ 158°F (70°C) 97% R.H.<br>(168 hrs, sample without any substrate) L/W/T                  | (% volume change)<br>-1.37 / -0.42 / +0.27 |                               |
| VOC Content         | VOC emissions from HEATLOK SOY® 200 PLUS complies with CA 01350   | Pass                                       |                               |
| ASTM C 1338         | Fungi resistance  | No fungal growth                           |                               |
| ASTM D 2856         | Closed cell content   | ~ 90%                                      |                               |

| Fire Test Results |  |                      |
|-------------------|--|----------------------|
| ASTM E 84         | Surface burning characteristics, 4" thick<br>Flame spread index<br>Smoke developed   | Class I<br>20<br>400 |
| NFPA 286          | Ignition barrier – Compliant with 2006, 2009 & 2012 IBC and IRC, and ICC-ES AC-377 Appendix X, for use in attics and crawl spaces without a prescriptive ignition barrier, thermal barrier or intumescent coating. | Pass                 |
| NFPA 286          | Thermal barrier – Compliant with the 2006, 2009 & 2012 IBC and IRC as an interior finish without a 15 minute thermal barrier with BLAZELOK™ TBX at 11 mils dry film thickness.                                     | Pass                 |
| ASTM D 1929       | Ignition properties (spontaneous ignition temperature)   | 932°F (500°C)        |

| Recycled and Renewable Content of HEATLOK SOY® 200 PLUS Resin |  |               |             |
|---|--|---------------|-------------|
| Polyols containing recycled and renewable content             |  | ~ 40%         |             |
| Renewable content   |  | 13.5%         |             |
| Recycled content  |  | Pre-consumer  | In progress |
|   |  | Post-consumer | In progress |
|   |  | Total         | In progress |

| Liquid Components Properties*               |                             |                             |
|---|-----------------------------|-----------------------------|
| Property                                    | Isocyanate A-PMDI           | HEATLOK SOY® 200 PLUS Resin |
| Color                                       | Brown                       | Blue                        |
| Viscosity                                   | 180 – 220 cps @ 77°F (25°C) | 650 – 850 cps @ 68°F (20°C) |
| Specific Gravity                            | 1.24                        | 1.18 – 1.20                 |
| Shelf Life of unopened drum properly stored | 12 months                   | 6 months                    |
| Storage Temperature                         | 50 – 100°F (10 – 38°C)      | 50 – 85°F (10 – 29°C)       |
| Mixing Ratio (volume)                       | 1:1                         | 1:1                         |

\*See MSDS for more information.

| Reactivity Profile |               |                |               |
|--------------------|---------------|----------------|---------------|
| Cream time         | Gel time      | Tack free time | End of rise   |
| 0 – 1 seconds      | 3 – 4 seconds | 4 – 5 seconds  | 5 – 6 seconds |

| Recommended Processing Conditions*          |   |                                 |
|---|---|---------------------------------|
| Initial Primary Heater Setpoint Temperature | 110°F   | 43°C                            |
| Initial Hose Heat Setpoint Temperature      | 110°F   | 43°C                            |
| Initial Processing Setpoint Pressure        | 1200 psi  | 8274 kPa                        |
| Substrate & Ambient Temperature             | Regular > 50°F<br>Winter > 25°F                                       | Regular > 10°C<br>Winter > -4°C |
| Moisture Content of Substrate               | ≤ 19%   | ≤ 19%                           |
| Moisture Content of Concrete                | Concrete must be cured, dry and free of dust and form release agents. |                                 |

\*Spray foam application temperatures and pressures can vary widely depending on temperature, humidity, elevation, substrate, equipment and other factors. While processing, the applicator must continuously observe the characteristics of the sprayed foam and adjust processing temperatures and pressures to maintain proper cell structure, adhesion, cohesion and general foam quality. It is the sole responsibility of the applicator to process and apply HEATLOK SOY® 200 PLUS within specification.

**General Requirements:** Spray equipment must be capable of delivering the proper ratio (1:1 by volume) of polymeric isocyanate (PMDI) and polyol blend at adequate temperatures and spray pressures. Substrate must be at least 5 degrees above dew point, with best processing results when ambient humidity is below 80%. Substrate must also be free of moisture (dew or frost), grease, oil, solvents and other materials that would adversely affect adhesion of the polyurethane foam. Due to the exothermic reaction of the isocyanate and polyol blend, mixed components should be applied in layers (maximum 3" thickness per layer). Allow foam to cool completely before applying successive layers.

HEATLOK SOY® 200 PLUS must be separated from the interior of the building by an approved thermal barrier or an approved finish material equivalent to a thermal barrier in accordance with applicable codes. HEATLOK SOY® 200 PLUS must be sprayed at a minimum thickness of 1" per pass. This product must not be used when the continuous service temperature of the substrate or foam is below -60°F (-51°C) or above 180°F (82°C). HEATLOK SOY® 200 PLUS should not be used to cover flexible ductwork.

**Disclaimer:** The information herein is to assist customers in determining whether our products are suitable for their applications. We request that customers inspect and test our products before use and satisfy themselves as to contents and suitability. Nothing herein shall constitute a warranty, expressed or implied, including any warranty of merchantability or fitness, nor is protection from any law or patent inferred. All patent rights are reserved. The foam product is combustible and must be covered by an approved thermal barrier. Protect from direct flame and spark contact, around hot work for example. The exclusive remedy for all proven claims is replacement of our materials.

