

ICC-ES Evaluation Report

ESR-2600

Reissued December 1, 2009

This report is subject to re-examination in two years.

www.icc-es.org | (800) 423-6587 | (562) 699-0543

A Subsidiary of the International Code Council®

DIVISION: 07—THERMAL AND MOISTURE PROTECTION
Section: 07210—Building Insulation

REPORT HOLDER:

DEMILEC USA LLC
 2925 GALLERIA DRIVE
 ARLINGTON, TEXAS 76011
 (817) 640-4900
www.demilecusa.com

EVALUATION SUBJECT:

**SEALECTION AGRIBALANCE® SPRAY FOAM
 INSULATION**

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2009 *International Building Code*® (IBC)
- 2009 *International Residential Code*® (IRC)
- 2009 *International Energy Conservation Code*® (IECC)
- Other Codes (see Section 8)

Properties evaluated:

- Surface-burning characteristics
- Physical properties
- Thermal resistance
- Attic and crawl space installation
- Air impermeability

2.0 USES

Sealection Agribalance® spray foam insulation is used as a nonstructural thermal insulating material in Type V-B construction under the IBC and dwellings under the IRC. The insulation is for use in wall cavities, floor assemblies, ceiling assemblies or attics and crawl spaces when installed in accordance with Section 4.4. Under the IRC, the insulation may be used as air-impermeable insulation when installed in accordance with Section 3.4.

3.0 DESCRIPTION

3.1 General:

Sealection Agribalance® is a spray-applied, semi-rigid, low density, cellular polyurethane foam plastic that is installed

as a nonstructural component of floor/ceiling and wall assemblies. The material is a two-component, open-cell spray-applied polyurethane foam plastic system. The product is a water-blown foam with nominal density of 0.7 pcf (11.2 kg/m³) and installed density of 0.6-0.8 pcf (9.6 - 12.80 kg/m³). The polyurethane foam is produced in the field by combining a polymeric isocyanate (A) and a resin (B). The products have a shelf life of one year, when stored in factory-sealed containers at temperatures between 40°F and 100°F (4.5°C and 38°C).

Sealection Agribalance® spray foam insulation is an air-impermeable insulation in accordance with Section R806.4 of the IRC based on testing in accordance with ASTM E 283.

3.2 Surface-burning Characteristics:

The insulation at a maximum thickness of 5.5 inches (139.7 mm) and a density of 0.6 pcf (9.6 kg/m³), has a flame-spread index of less than 25 and smoke-developed index of less than 450 when tested in accordance with ASTM E 84. Thicknesses up to 11.5 inches (292 mm) for wall cavities and 10 inches (254 mm) for ceiling cavities are recognized based on comparative crawl space fire tests in attics and crawl spaces.

3.3 Thermal Resistance, R-values:

The insulation has thermal resistance, R-values, at a mean temperature of 75°F (24°C), as shown in Table 1.

3.4 Air Permeability:

Sealection Agribalance® spray-applied polyurethane foam insulation, at a minimum of 3.5 inches (89 mm), is considered air-impermeable insulation in accordance with Section R806.4 of the IRC based on testing in accordance with ASTM E 283.

3.5 Blazelok™ IB Intumescent Coating:

Blazelok™ IB intumescent coating, manufactured by TPR² Corporation, is a one-component, water-based liquid coating with specific gravity of 1.3. *Blazelok*™ IB is supplied in 5-gallon (19 L) pails and/or 55-gallon (208 L) drums and has a shelf life of one year when stored in factory-sealed containers at temperatures between 45°F (7°C) and 90°F (32°C).

3.6 Sustainable Attributes:

See ICC-ES [VAR-1006](#) for determination of biobased content.

4.0 DESIGN AND INSTALLATION

4.1 General:

Sealection Agribalance[®] spray foam insulation must be installed in accordance with the manufacturer's published installation instructions and this report. A copy of the manufacturer's published installation instructions must be available at all times on the jobsite during installation.

4.2 Application:

The insulation is spray-applied on the jobsite using a volumetric positive displacement pump as identified in the Demilec application manual. The insulation can be installed in one pass to the maximum thickness as specified in Sections 3.2 and 4.4.2. The foam plastic must not be used in electrical outlet or junction boxes or in contact with rain, water, or soil. The foam plastic must not be sprayed onto a substrate that is wet, or covered with frost or ice, loose scales, rust, oil, or grease. *Sealection Agribalance*[®] resin (B) must be stored in areas where the ambient temperature is between 50°F and 95°F (10°C and 35°C). *Sealection Agribalance*[®] must be used in areas where maximum ambient temperature is equal or less than 180°F (82°C). The insulation must be protected from the weather during and after application.

4.3 Thermal Barrier:

Sealection Agribalance[®] spray foam insulation must be separated from the interior of the building by an approved thermal barrier of 1/2-inch-thick (12.7 mm) gypsum wallboard or an equivalent 15-minute thermal barrier complying with, and installed in accordance with IBC, Section 2603.4 or IRC Section R316.4, as applicable, except when installation is in attics and crawl spaces, as described in Section 4.4.

4.4 Attics and Crawl Spaces:

4.4.1 Application with a Prescriptive Ignition Barrier: When *Sealection Agribalance*[®] insulation is installed within attics or crawl spaces where entry is made only for service of utilities, an ignition barrier must be installed in accordance with IBC Section 2603.4.1.6 or IRC Sections R316.5.3 and R316.5.4, as applicable. The ignition barrier must be consistent with the requirements for the type of construction required by the applicable code, and must be installed in a manner so the foam plastic insulation is not exposed. *Sealection Agribalance*[®] insulation as described in this section may be installed in unvented attics in accordance with IRC Section R806.4.

4.4.2 Application without a Prescriptive Ignition Barrier:

4.4.2.1 General: Where *Sealection Agribalance*[®] insulation is installed without a prescriptive ignition barrier in attics and crawl spaces in accordance with this section, the following conditions apply:

- Entry to the attic or crawl space is only to service utilities and no storage is permitted.
- There are no interconnected attic or crawl space areas.
- Air in the attic or crawl space is not circulated to other parts of the building.
- Attic ventilation must be provided in accordance with the applicable code, except when air-impermeable insulation is permitted in unvented attics in accordance with Section Section R806.4 of the IRC.
- Under-floor (crawl space) ventilation is provided in accordance with IBC Section 1203.3 or IRC Section R408.1, as applicable.

- Combustion air must be provided in accordance with *the International Mechanical Code*[®] (IMC) Sections 701 and 703.

4.4.2.2 *Sealection Agribalance*[®] Insulation with Blazelok[™]IB Coating: *Sealection Agribalance*[®] insulation may be spray-applied to the underside of roof sheathing and/or rafters; and the underside of wood floors and/or floor joists in crawl spaces as described in this section. The thickness of the foam plastic applied to the underside of the wood floor and roof sheathing must not exceed 11.25 inches (285.8 mm). The spray foam insulation applied to vertical wall surfaces in attics and crawl spaces must not exceed 10 inches (254.0 mm) in depth. The vertical surfaces must be covered with a minimum 10 mil (0.254 mm) dry film [16 mils (0.4 mm) wet film] thickness of Blazelok[™]IB intumescent coating as described in Section 3.6, which must be applied over the insulation in accordance with the coating manufacturer's instructions and this report. Surfaces to be coated must be dry and clean, and free of dirt, loose debris and any other substances that could interfere with adhesion of the coating.

4.4.3 Use on Attic Floors: *Sealection Agribalance*[®] spray-applied insulation may be installed exposed at a maximum thickness of 10 inches (254.0 mm) between and over the joists in attic floors. The insulation must be separated from the interior of the building by an approved thermal barrier. The ignition barrier in accordance with IBC Section 2603.4 and IRC Section R316.5.3 may be omitted.

5.0 CONDITIONS OF USE

The *Sealection Agribalance*[®] spray-applied foam insulation described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 This evaluation report and the manufacturer's published installation instructions, when required by the code official, must be submitted at the time of permit application.
- 5.2 The products must be installed in accordance with the manufacturer's published installation instructions, this evaluation report and the applicable code. The instructions within this report govern if there are any conflicts between the manufacturers' published installation instructions and this report.
- 5.3 The insulation must be separated from the interior of the building by an approved 15-minute thermal barrier, except as when installation is in attics and crawl spaces as described in Section 4.3.
- 5.4 The insulation must not exceed the density and thickness noted in Sections 3.2, 4.4.2 and 4.4.3 of this report.
- 5.5 The insulation must be protected from the weather during and after application.
- 5.6 The insulation must be applied by contractors certified by Demilec USA.
- 5.7 Use of the insulation in areas where the probability of termite infestation is "very heavy" must be in accordance with IRC Section R318.4 or IBC Section 2603.8, as applicable.
- 5.8 The insulation has been evaluated only for use in Type V-B construction under the IBC and non-fire-resistance rated assemblies in dwellings under the IRC.

- 5.9 Jobsite certification and labeling of the insulation must comply with IRC Section N1101.4 and N1104.4.1 and IECC Section 303.1.1 and 303.1.2, as applicable.
- 5.10 A vapor retarder must be installed when required by the applicable code.
- 5.11 The insulation is produced in Arlington, Texas, under a quality control program with inspections by Intertek Testing Services NA Ltd. (AA-657).

6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with ICC-ES Acceptance Criteria for Spray-applied Foam Plastic Insulation (AC377), dated June 2009.
- 6.2 Reports of comparative crawl-space fire tests.
- 6.3 Reports of air leakage tests in accordance with ASTM E 283.
- 6.4 Reports of comparative room corner fire tests in accordance with Section A1.2.2 of AC377.

7.0 IDENTIFICATION

Components for *Sealection Agribalance*[®] spray foam insulation are identified with the manufacturer's name (Demilec USA), address and telephone number; the product trade name (*Sealection Agribalance*[®]); use instructions; the density; the flame-spread and smoke-development indices; the evaluation report number (ESR-2600); and the name of the inspection agency (Intertek Testing Services NA Ltd.)

Each pail of Blazelok[™] IB intumescent coating is labeled with the manufacturer's name (TPR² Corporation), the product name and use instructions.

8.0 OTHER CODES:

8.1 Evaluation Scope:

The products recognized in this report have been evaluated in accordance with the following codes:

- 2006 *International Building Code*[®] (IBC)
- 2006 *International Residential Code*[®] (IRC)
- 2006 *International Energy Conservation Code*[®] (IECC)
- 2003 *International Building Code*[®] (IBC)
- 2003 *International Residential Code*[®] (IRC)
- 2003 *International Energy Conservation Code*[®] (IECC)

8.2 Uses:

See Section 2.0.

8.3 Description:

See Section 3.0.

8.4 Installation:

See Section 4.0.

8.4.1 Application With a Prescriptive Ignition Barrier: See Section 4.4.1, except attics and crawl spaces must always be vented per code.

8.4.2 Application Without a Prescriptive Ignition Barrier: See Section 4.4.2, except attics and crawl spaces must always be vented per code.

8.4.3 Use on Attic Floors: See Section 4.4.3.

8.5 Conditions of Use:

The *Sealection Agribalance*[®] insulation described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 8.0 of this report, subject to conditions noted in Sections 5.1 through 5.11 of this report.

TABLE 1—THERMAL RESISTANCE (R-VALUES)

THICKNESS (INCH)	R-VALUE (°F.ft ² .h/Btu)
ASTM C 518 TESTED VALUES	
1	4.5
2	8.9
3	13.4
4	17.8
CALCULATED R-VALUES¹	
3.5	15.6
5.5	24.5
6	26.7
7.5	33.4
8.75	38.9
10	44.5
11.25	50.1

For **SI**: 1 inch = 25.4 mm; 1°F.ft².h/Btu = 0.176 110°K.m²/W.

¹Calculated R-values are based on tested K values at a 4-inch thickness.