



# TECHNICAL DATA SHEET

## Staycell<sup>®</sup> 302 Spray Foam Insulation

### Product Description

Staycell<sup>®</sup> 302 is a two-part, closed-cell spray polyurethane foam insulation product used to insulate roof decks, ceilings, walls, siding, structural steel and tanks and provides an integral air barrier / insulation / vapor retarder for building envelope assemblies.

Benefits:

- Superior insulation performance compared to fiberglass or cellulose
- Controls air and moisture infiltration
- Strengthens roofs and walls
- Environmentally friendly. Utilizes EPA approved, zero-ozone depleting blowing agents

### Typical Physical Properties

<b>Nominal Density</b> ASTM D1622, lbs/ft <sup>3</sup>	2.0 lbs.	<b>Noise Reduction Coefficient</b> ASTM E423	.10
<b>Thermal Resistance</b> ASTM C518, Aged R-value	7.0/inch	<b>Surface Burning Characteristics</b> ASTM E84 (4" thick) Flame Spread Index Smoke Developed Index	<25 <450
<b>Air Permeance</b> ASTM E283	<0.005 L/sm <sup>2</sup>	<b>Compressive Strength</b> ASTM D1621, psi	41
<b>Water Vapor Transmission</b> ASTM E96, Perm-inch	1.49 Perms @ 1" .92 Perms @ 1.5" .77 Perms @ 2"	<b>Tensile Strength</b> ASTM D1623, psi	58
<b>Dimensional Stability</b> ASTM D2126-98	<0.27%	<b>NFPA 259</b> Potential Heat, per inch	1,883 Btu/ft <sup>2</sup>
<b>Closed Cell Content</b> ASTM D6226	>96%	<b>NFPA 285</b> Compliant for use in Building Types: I,II, III, IV, V	Pass
<b>Sound Transmission Coefficient</b> ASTM E413	38		

### Building Code Compliance

As shown below, Staycell<sup>®</sup> 302 is listed, labeled and certified by QAI Laboratories ([www.qai.org/listing-directory](http://www.qai.org/listing-directory)) indicating Class A/Class 1 flame spread and smoke developed ratings per ASTM E-84 as required by the 2003, 2006, 2009, 2012 and 2015 editions of the International Building Code and International Residential Code.

Staycell<sup>®</sup> 302 must be separated from the interior of the building with ½ inch thick gypsum board or covered with Staycell ONE STEP<sup>®</sup> 255 intumescent spray foam insulation as an Alternative Thermal Barrier Assembly when installed in accordance with QAI Evaluation Report No. B1020-1, Edition 6.

Fire testing of the exposed Staycell® 302/Staycell ONE STEP® 255 HYBRID System was conducted separately for installation on either walls only or the underside of ceilings/roofs only. THE HYBRID SYSTEM IS NOT TO BE INSTALLED EXPOSED ON ENTIRE WALLS AND ENTIRE ROOFS/CEILINGS WHEN ADJACENT TO EACH OTHER. Contact PSI for tested wall/roof transitions for air sealing applications.



## Evaluation Report No. B1020-1, Edition 6

### **Staycell® 302 / Staycell ONE STEP® 255 HYBRID Spray Foam Insulation System**

#### **Fire performance in accordance with ASTM E-84\*:**

##### **Staycell® 302 spray foam insulation (base layer):**

Tested thickness: 4 inches Flame spread index: <25 Smoke developed index: <450

##### **Staycell ONE STEP® 255 intumescent spray foam insulation (exposed surface layer):**

Tested thickness: 4 inches Flame spread index: <25 Smoke developed index: <450

#### **Alternative Thermal Barrier Assembly when installed exposed; no thermal barrier or ignition barrier required based on compliance with UL1715 large-scale, room fire test:**

##### **Exposed applications on walls only:**

Staycell 302® base layer installed at nominal 3 inch or less thickness covered with nominal 1 inch thick Staycell ONE STEP® 255 as the exposed surface layer.

##### **Exposed applications on the underside of roofs and ceilings only:**

Staycell 302® base layer installed at nominal 8 inch or less thickness covered with nominal ½ inch thick Staycell ONE STEP® 255 as the exposed surface layer.

**\*These fire ratings are not intended to reflect the hazards of these products under all actual fire conditions. Contact the Authority Having Jurisdiction (AHJ) for specific building code requirements prior to beginning any project.**

QAI is accredited by International Accreditation Services, Inc. of the International Code Council for fire testing, quality control inspections of manufacturing facilities and certification of listed and labeled products in accordance with IAS Registration Nos. AA-723, TL-220 and PCA-119.

### **Storage**

Both components should be stored in their original containers and away from excessive heat and moisture, especially after the seals have been broken or some materials have been used. Drums should be stored indoors and jobsite tanks maintained between 50°-75°F. Containers should be opened carefully to allow any pressure buildup to be vented safely while wearing full safety protection. Excessive venting of the "B" component may result in higher density foam and reduced yield. Materials stored at temperatures below 50°F will increase viscosity and some application equipment may not reach adequate spray temperature set points. Supply pumps and hoses must be sized to provide adequate supply when materials are cold and at a higher viscosity.

### **Shelf Life**

Shelf life of Part A and Part B components is six (6) months when stored in the original, unopened containers at 50°-75°F. Shelf life may decrease if storage is above or below these temperatures.

## **Surface Preparation**

All surfaces to receive Staycell® 302 must be clean and dry, free of dirt, oil, solvent, grease, loose particulates, curing compounds, frost, ice and other foreign matter which could inhibit adhesion. Moisture content and surface conditions of substrate are critical to adhesion and need to be verified by installing contractor in small test areas before proceeding with full application. Prime if necessary.

Suitable substrates include: exterior grade gypsum sheathing, OSB, plywood, lumber, CMU, structural and lightweight concrete and galvanized, aluminum and painted metal. Lightweight insulating concrete or other friable substrates are not recommended.

## **Recommended Substrate Temperatures**

Staycell® 302 is formulated in four different reactivities to meet varying temperatures at jobsites.

	<u>(S) Summer</u>	<u>(R) Regular</u>	<u>(M) Mid-Range</u>	<u>(W) Winter</u>
Minimum/maximum substrate & air temp.	90-110°F.	75-90°F.	45-75°F.	*See below

For applications below 45°F, contact PSI Technical Services for Cold Temperature Application Guidelines.

## **Climatic Conditions and Humidity**

Moisture in the form of rain, dew and frost can seriously affect the quality and adhesion of the Staycell® 302 to the substrate or itself. When heating the interior of a building in cold weather, humidity can change dramatically and substrates should be constantly be measured for moisture/condensation.

## **Application Equipment**

The proportioning equipment shall be manufactured specifically for heating, mixing, and spraying of polyurethane foam and be able to maintain 1:1 volume metering with a  $\pm$  2% variance and adequate heating capacity to deliver heated and pressurized materials up to 125°F. Heated hose must be able to maintain pre-set temperatures for the full length of the hose. Minimum 2:1 pressure ratio feeder pumps are required to supply stored materials through minimum 3/4-inch supply hoses. Pressurized and heated tank systems may be used if sized appropriately to provide adequate flow at maximum operating capacity and temperatures.

## **Liquid Component Properties**

Weight Per Gallon	
Part A Component (cps)	10.2 lbs
Part B Component (cps)	9.8 lbs
Mixing Ratio by Volume	
Part A Component	50
Part B Component	50

## **Processing Temperatures**

Recommended processing temperatures: Pre-heaters on proportioner: 125-130°F for Part A&B. Hose heat: 125-130°F. These are critical settings to achieve viscosity necessary for balanced pressures during spraying. Balanced chemical output pressures are important to producing good mix. Foam output pressures greater than 200 psi differential indicate either improper chemical temperatures or worn gun/packing parts. Unequal pressures will cause poor chemical mixing during spraying and uneven backpressure. A critical requirement for good spray mixing requires appropriate tip/module sizing to the proportioner and adequate heating capacity. Unequal pressures greater than 200 psi can cause excessive pump wear. Do not re-circulate the B Component to increase temperature as frothing or boil-over may occur at material temperatures above 60°F.

## **Spraying**

This spray system should be applied in uniform, minimum pass thickness of one inch and maximum pass thickness of three inches. Application temperatures below 45°F may require reduction in single pass application thickness. Yield and in-place

density are dependent upon the temperature of the substrate, ambient air temperature, speed of application, gun tip size, and the output of the proportioning unit. Excessive pass thickness can reduce density and physical properties, and cause local overheating and possible fire. To avoid heat damage when applying over membranes (such as Blueskin SA), apply initial one-inch pass and allow to fully cool before subsequent passes. For additional application information, please refer to the Staycell® 302 Installation Guide.

### **Worker Exposure Hazards**

Both Components A and B can cause severe inhalation and skin sensitization. For interior applications: full body protection is recommended including air-supplied respirator such as a self-contained breathing apparatus (SCBA) or a supplied air respirator (SAR) in the positive pressure or continuous flow mode (this includes air supplied hoods). Alternatively, a full-face air purifying respirator with suitable organic vapor/particulate filter combination cartridge (OV/P100) may be worn. All applicators and workers must obtain formal training before exposure to or applying this product. More product information and training materials can be obtained from PSI at [www.stayflex.com](http://www.stayflex.com), the Spray Polyurethane Foam Alliance and the Center for the Polyurethane Industry websites [www.spraypolyurethane.com](http://www.spraypolyurethane.com), [www.polyurethane.org](http://www.polyurethane.org) and [www.sprayfoam.org](http://www.sprayfoam.org).

### **Precautions**

Read and understand the Safety Data Sheets for this product before use.

Each firm, person, and organization engaged in the use or application of this product should carefully examine the end use to determine any potential fire hazard associated with its use and utilize appropriate precautionary and safety measures. Consult with local building code officials and insurance agency personnel before application. Caution during application must be observed with signs posted for other trades reading "Caution: Combustible Insulation, No Welding or Hot Work Allowed". All debris from the jobsite should be removed daily leaving a clean work area.

When using fuel-fired heating units the exhaust must be vented directly outdoors to prevent unsafe carbon monoxide conditions in the work area. Electric heating units are preferred. PSI technical personnel should be consulted in all cases where application conditions are marginal.

### **Limited Warranty Information**

The technical and application information herein is based on the present state of our best scientific and practical knowledge and is provided to users to help determine suitability of our products for specific applications. Our products are intended only for sale to PSI Authorized Applicators. Customers of our products assume full responsibility for quality control, testing and determination of suitability of products for their intended application or use, including compliance with applicable building regulations. We warrant that our products meet our written liquid component specifications. We make no other warranty of any kind, either express or implied, by fact or law, including any warranty of merchantability or fitness for a particular purpose. Our total liability and customers' exclusive remedy for all proven claims is to receive replacement of non-conforming products and in no event shall PSI be liable for incidental, consequential or any other damages. PSI's technical literature and installation guides are updated on a regular basis; it is the user's responsibility to obtain and to comply with the most recent versions. Information contained in data sheets and installation guides may change without notice.

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