



TECHNICAL DATA SHEET

Staycell[®] 275-1.8 Spray Foam Insulation

Product Description

Staycell[®] 275-1.8 is a two-part, closed-cell 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 of Cured Foam*

Nominal Density ASTM D1622, lbs/ft ³	1.8 lbs.	Sound Transmission ASTM E90-04 STC/OITC	27/24
Thermal Resistance ASTM C518 Aged R value (140°F @ 90 days)	6.47	Surface Burning Characteristics ASTM E84 (4" thick) Flame Spread Index Smoke Development Index	20 450
Air Permeance ASTM E283 L/s/m ²	0.0036 (0.0007 cfm/ft ²)	Large Scale Room Fire Test UBC 26-3 with ½" gypsum board ≤ 8 inches on walls ≤ 12 inches on ceilings or roofs	Pass
Water Vapour Transmission ASTM E96, Method A desiccant Perm-inch	0.97	Compressive Strength ASTM D1621, psi	25
Dimensional Stability ASTM D2126-98 168 hr at 70°C, 97% humidity	3.06%	Tensile Strength ASTM D1623, psi	55-65
Closed Cell Content ASTM D1940	93%	Shear Strength ASTM C273, psi	35

Usage

Staycell[®] 275-1.8 is used to insulate a variety of interior wall, subfloor, cavity-wall and roof cavity conditions including: residential and commercial stud walls, ceilings, sub-floor cavities, "controlled atmosphere" storage structures and metal buildings. Uncontrolled air leakage is eliminated increasing overall thermal performance of building structures, saving energy costs.

Coverage

Average yield is 4,500 to 5,500 board feet per 1,000 pound set, consisting of one drum of Part A and one drum of Part B. Yield may vary based on actual jobsite conditions.

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® 275-1.8 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® 275-1.8 is formulated in two different reactivity profiles to meet varying substrate temperatures at jobsites. Supplemental heating is required at temperatures of 40°F and below. Depending on relative humidity and supplemental heating, application temperatures down to 30°F are possible.

	<u>Winter Grade</u>	<u>Regular Grade</u>
Minimum substrate & air temp	30°F	60°F
Maximum substrate & air temp	80°F	120°F

For applications below 40°F, PSI technical personnel should be consulted. At the lower end of the indicated temperature ranges, thin “flash passes” should be avoided.

Machine Mix at Recommended Temperatures

	<u>Winter Grade</u>	<u>Regular Grade</u>
Cream Time	1 second	2 seconds
Tack Free Time	On Rise	On Rise
Initial Cure time	4 hours*	4 hours*

*Complete cure will depend on temperature, humidity and degree of ventilation. Complete cure usually occurs within 24-72 hours.

Climatic Conditions and Humidity

Moisture in the form of rain, dew and frost can seriously affect the quality and adhesion of the Staycell® 275-1.8 to the substrate or itself. Preferred Solutions, Inc. does not recommend the spraying of this system when the relative humidity (RH) exceeds 85%. When heating the interior of a building, the relative humidity can change dramatically and should constantly be measured.

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 135°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.

Guns such as D-gun, Gap Pro, Fusion, and Probler with tip size providing approximately 16 lbs. /minute are suitable for most residential applications. Commercial applications and large metal buildings may justify use of higher output guns.

Liquid Component Properties

Viscosity/Specific Gravity at 70°F.	
Part A Component (cps)	200 cps/1.24
Part B Component (cps)	800±50 cps/1.22
Mixing Ratio by Volume	
Part A Component	50
Part B Component	50

Processing Temperatures

Recommended processing temperatures: Main heater on proportioner: 110-115°F for Part A and 120-125°F for Part B. Hose heat: 110-125°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

Thin “flash passes” to very cold surfaces are not recommended. Thin passes (1/4” or less) should be avoided. They may result in reduced yield and loss of adhesion. It is recommended that the total design thickness be completed each day. This spray system should be applied in uniform, minimum pass thickness of one inch and maximum pass thickness of three inches. Application temperatures below 40°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® 275-1.8 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 www.stayflex.com, the Spray Polyurethane Foam Alliance and the Center for the Polyurethane Industry websites www.spraypolyurethane.com, www.polyurethane.org and www.sprayfoam.org.

Precautions

Read and understand the Material Safety Data Sheet 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.

In freezing conditions (below 32°F.), jobsite air temperature must be maintained above 50°F during cure cycle so extreme temperature drops to the curing (green) foam are not experienced. 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.

Building Code Compliance

Staycell® 275-1.8 is listed and labeled by Quality Auditing Institute (www.qai.org) indicating Class A/Class 1 flame spread and smoke developed ratings per ASTM E-84 as permitted by the 2003, 2006, 2009 and 2012 editions of the International Building Code and International Residential Code.

This product can be covered with Staycell ONE STEP® 255 spray foam insulation to provide a code-compliant Thermal Barrier Assembly (for more information, refer to the Staycell® 275-1.8 HYBRID System Technical Data Sheet) when installed in accordance with QAI Listing/Evaluation/Classification Report No. B1020-3. Alternately, it can be covered with ½-inch thick gypsum board.

Quality Auditing Institute label attached to all product containers indicating fire performance and ratings



Listing/Evaluation/Classification Report No. B1020-3

Staycell® 275-1.8 Spray Foam Insulation

Fire performance in accordance with ASTM E-84*:

Tested thickness: 4 inches Flame spread index: 20 Smoke developed index: 450

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This product can be covered with Staycell ONE STEP® 255 foam insulation to provide a code-compliant, Thermal Barrier Assembly when installed in accordance with QAI Listing/Evaluation/Classification Report No. B1020-3. Alternately, Staycell® 275-1.8 can be covered with ½-inch thick gypsum board.

*The numerical flame spread and smoke development ratings are not intended to reflect the hazards of this product under all actual fire conditions. Contact Authority Having Jurisdiction (AHJ) for additional or specific requirements prior to beginning any project.

QAI is accredited by International Accreditation Services, Inc. of the International Code Council for fire testing and 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.

Container Sizes

Component A - 500 pound drums
Component B - 500 pound drums

Freight Classification of A and B Components

Resin compounds, Class 55, NOIBN, Non-Hazardous

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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