PREFERRED SOLUTIONS, INC.

APPLICATION GUIDE

Staycell ONE STEP® 255 Spray Foam Insulation (MONOLITHIC System)

General Information

Staycell ONE STEP® 255 is a spray polyurethane foam system intended for installation by qualified contractors trained in the processing and application of closed cell, rigid polyurethane foam systems as well as plural-component dispensing equipment. Contractors and applicators must be certified in writing by Preferred Solutions, Inc. and must comply with all applicable storage, handling, processing and safety guidelines. Preferred Solutions, Inc. should be consulted in all cases where the application conditions or materials are questionable.

Cautions & Recommendations

Staycell ONE STEP® 255 is not designed for use as an exterior roofing system. Coolers & freezers demand special design considerations with regard to thermal insulation and moisture/vapor drive. Staycell ONE STEP® 255 should not be installed in coolers or freezers unless the structure was designed by a certified professional for specific use a cold storage. Applicators must contact Preferred Solutions, Inc. prior to any application in cold storage structures.

Improperly installed foam plastic insulation materials in walls or ceilings may present a fire hazard. Contact Preferred Solutions, Inc. for approved configurations and assemblies prior to application.

Worker Exposure Hazards: Both Components “A” and “B” can cause severe inhalation and skin sensitization. Please refer to the Staycell ONE STEP® 255 technical data sheet and MSDS sheets for more information.

In addition to reading and understanding the MSDS & technical data sheets, all applicators must use appropriate respiratory, skin and eye Personal Protective Equipment (PPE) when handling and processing this product. Personnel should review the following document published by the Spray Polyurethane Foam Alliance (SPFA) at www.sprayfoam.org:

> AX-171 Course 101-R Chapter 1: Health, Safety and Environmental Aspects of Spray Polyurethane Foam and Coverings

and the following document available from the Center for the Polyurethanes Industries (CPI):

> Model Respiratory Protection Program for Compliance with the Occupational Safety and Health Administration’s Respiratory Protection Program Standard 29 C.F.R. § 1910.134.

It is recommended that all applicators and workers obtain training before use of this product. More product information and training materials are available at PSI’s website www.stayflex.com and CPI websites: www.spraypolyurethane.org, www.polyurethane.org.

Caution: Exercise caution when opening containers as material may build elevated headspace pressure during transportation and storage.

Environmental & Substrate Conditions

Applicators must recognize and anticipate climatic conditions prior to application to ensure highest quality foam and to maximize yield. Ambient air and substrate temperatures and moisture are critical determinants of foam quality.

Extreme ambient air and substrate temperature will influence the chemical reaction of the two components, directly affecting the yield, adhesion and the resultant physical properties of the foam insulation.

To obtain optimum results, Staycell ONE STEP® 255 should be applied to substrates when ambient air and substrate temperatures are between 70º F. and 120º F. The minimum recommended air and substrate temperature is 45º F. Please contact PSI technical support for applications below 45º F.

Application should not take place when the ambient temperature is within 5º F of the dew point. Excessive wind velocities may result in loss of exotherm and interfere with the mixing efficiency of the spray gun affecting foam surface texture, cure, physical properties and will cause overspray. Precautions must be taken to prevent damage to adjacent areas from overspray.

All surfaces 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 prior to proceeding with installation.

Suitable substrates include gypsum sheathing, OSB, plywood, lumber, CMU, structural & lightweight concrete and properly prepared galvanized, aluminum and painted metal. Painted steel, galvanized, stainless and aluminum must be checked for mill oil used in the manufacturing process. Clean and prime as necessary.

In freezing conditions (≤32º F), when adding heat to the spray area, it may be required to maintain an elevated temperature during the foam cure cycle (24-72 hours) so extreme temperature drops to the “green“ foam are not experienced, which could cause shrinking or cracking.

PSI should be consulted in all cases where application conditions are marginal.

Equipment

The proportioning equipment shall be manufactured specifically for heating, mixing and spray application of polyurethane foam and be able to maintain 1:1 metering by volume with ± 2% variance. All proportioners shall have adequate main heating capacity to deliver heated and pressurized materials up to at least 130º F. Heated hose shall be able to maintain pre-set temperatures for the full length of the hose. 2:1 ratio feeder pumps and ¾ inch supply hoses are recommended to transfer material from container to the proportioner.

Recommended equipment:

- Graco Reactor proportioners or equivalent set at 1:1 volume ratio. Contact PSI for specific models.
- Graco GAP or Fusion AP spray gun with #2 mixing chamber.
- Graco T2 2:1 transfer pumps.

Processing Information

The resin & isocyanate (“A” and “B” components) must be thoroughly mixed before use. Proper mixing will create a vortex and may be accomplished with a variety of equipment configurations, motors, mixers and blade types. Material in containers should be maintained at 70º F. to 90º F. while in use. Heated trailers, hotboxes, or other temperature controlled areas may be necessary. Material temperature should be confirmed with a thermometer or an infrared gun.

Do not recirculate or mix other suppliers’ "A" or "B" components into Staycell ONE STEP® 255 containers. All screens must be removed from the spray equipment and guns.

Processing temperatures: Component “A” Main 125-130°F, Component “B” Main 125-130°F, Hose125-130°F.

Pressure: Typical static proportioner pressures are between 1,300-1,500 psi with dynamic spraying pressures around 1,100 – 1,300 psi. Adjust pressure up or down depending on quality of spray pattern, quality of mix, type of machine, hose diameter and hose length.

Balanced chemical output pressures are important to producing good mix. Unequal pressures greater than 200 psi differential may cause poor chemical mixing through the mixing chamber. Optimum hose pressure and temperature may vary as a function of the type of equipment, ambient and substrate conditions, and the specific application. It is the responsibility of the applicator to properly interpret equipment technical literature, particularly information that relates to acceptable combinations of gun chamber size, proportioner output, and material pressures. The relationship between proper chamber size and the capacity of the proportioner’s main pre-heaters is critical.

Staycell ONE STEP® 255 is designed for an application rate of ½ inch to 2 inches per pass. Once installed material has cooled it is possible to add additional material in order or increase the overall desired thickness. It is recommended that the design thickness be completed each day rather than partial application thickness.

As with all SPF systems, improper application techniques should be avoided. Examples of improper application techniques include, but are not limited to, excessive thickness of SPF, off-ratio material and spraying into or under rising SPF. Potential results of improperly installed SPF include dangerously high reaction temperatures that may result in fire and offensive odors that may or may not dissipate. Improperly installed SPF must be removed and replaced with properly installed materials.

On a daily basis remove all debris and shavings from the jobsite leaving a clean work area.

Handling & Storage

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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 used. Workers must be wearing full safety gear before opening container. Lids on containers should be opened only after pressure buildup has first been relieved by loosening bung cap/cover carefully to allow any pressure buildup to be vented safely. Excessive venting of the “B” component may result in higher density 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. Keep containers tightly sealed and stored at 50° to 75°F for maximum shelf life. Storage temperatures must not exceed 85°F. Do not store in direct sunlight. Keep drums tightly sealed when not in use to avoid contamination. Water, solvents or oil in the liquid components will degrade foam quality. Protect from heat, sparks and open flame. Do not cut or weld near this container. Do not smoke near container. Do not store near food or feed.

Shelf Life

Staycell ONE STEP® 255 has a shelf life of approximately three (3) months from the date of manufacture when stored in original, unopened containers between 50° to 75°F. As with all industrial chemicals, this material should be stored in a covered, secure location and never in sunlight or direct sources of heat. Storage temperatures above the recommended range will shorten shelf life and may also result in elevated headspace pressure within packages.

Limited Warranty Information

The information herein is to provide assistance in determining the suitability of our products for specific applications. Our products are only intended 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. 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 nonconforming products and in no event shall PSI be liable for any other damages. PSI technical literature is updated on a regular basis; it is the user's responsibility to obtain and to confirm the most recent version. Information contained in this data sheet may change without notice.

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