



## **APPLICATION GUIDE**

**Stayflex® 2505 Thermal Barrier Coating &  
Staycoat® 2510 Gelcoat Topcoat**

## A word about our company...

Preferred Solutions, Inc. (PSI) has produced this booklet as part of its continuing commitment to you, our valued customer.

PSI considers itself your partner in the use and installation of our the Stayflex® System.

As a partner, we have a vested interest in your success. We want you to realize the maximum benefits in your use of PSI products. We want your use and installation of our products to be as smooth and trouble-free as possible.

Toward that end, our staff has designed this booklet for you. Included in this publication, you will find guidance on applications, materials, safety, equipment operation and maintenance, and trouble-shooting.

This manual covers the use of our Stayflex® 2505 Thermal Barrier Coating & Staycoat® 2510 Gelcoat Topcoat. Successful application of these products are dependent upon many variables including equipment maintenance, applicator experience/training and application conditions. The following information will enable you to apply these materials in a consistent, high-quality manner.

While many of these recommendations may seem tedious or redundant, careful study and continued use of this booklet will provide a better understanding of the equipment and process, resulting in more efficient operation, longer trouble-free service and faster, easier trouble-shooting.

### Overview

The Stayflex® System is spray-applied to interior building components such as structural steel, metal decking, siding, walls, ceilings and tanks in new and existing facilities within the industrial, commercial and institutional market sectors.

The Stayflex® System, which has proven 25+ year proven performance, often provides the most cost-effective solution to a variety of corrosion and thermal insulation problems. PSI works directly with end-users, architects and engineering firms to develop project specifications. The Stayflex® System is installed nationwide by PSI's Authorized Applicator Contractors.

## Health & Fire Safety

The following information is of a general nature only. Information concerning the hazards of these products can be found in the Material Safety Data Sheets (MSDS) and on the product container labels. These documents must be read and followed. Although vinyl-ester resin coatings are safe to use if handled properly, precautions must be taken to protect workers and facilities.

### General Safety

Every contractor should have a safety program. Safety is the responsibility of every employee. Accidents and worker injuries occur where good work practices were not established or observed.

Safety inspections/meetings should be held periodically. MSDS sheets and other safety data for all hazardous materials found on the job site must be kept on hand for reference. All employees, supervisors and workers, should be aware of proper use, handling and clean-up instructions when handling any hazardous material. Consult OSHA's Hazard Communication Standard, 29 CFR 1910.1200 for specific requirements.

Do not wait until an emergency occurs to find out what must be done!

## Hazards of Materials Used

### 1. HiPoint 90 Methyl Ethyl Ketone Peroxide (MEKP) Catalyst

HiPoint 90 is an organic peroxide catalyst required for the proper curing of the Stayflex® 2505 Thermal Barrier Coating & Staycoat® 2510 Gelcoat Topcoat. Catalyst is **FLAMMABLE** and should be handled carefully!

Store catalyst separately from all coatings and cleaning solvents.

Improper storage conditions, contamination and use are always potential sources of trouble in handling catalyst. A few basic rules include the following:

1. Read and follow carefully the Material Safety Data Sheet (MSDS).
2. **NO SMOKING** near catalyst or any other associated materials.
3. **Always wear respiratory protection equipment.**
4. **Always wear eye protection.** Proper gloves and face shields are also recommended.
5. Use in a well-ventilated area.
6. Never dilute the catalyst with any type of material.
7. Do not expose catalyst to any form of heat such as direct sunlight, steam pipes, radiators, open flames, or sparks.
8. Do not let catalyst come in contact with easily oxidized metals such as copper, brass, and mild or galvanized steel.
9. Always store catalyst at or below 77°F and out of sunlight in a cool, well-ventilated place.
10. **Never mix with any solvent, such as Acetone.** Mixture can violently decompose and may self-ignite.

### 2. Stayflex® 2505 Thermal Barrier Coating & Staycoat® 2510 Gelcoat Topcoat.

The Stayflex® 2505 Thermal Barrier Coating & Staycoat® 2510 Gelcoat Topcoat are **FLAMMABLE** and should be handled carefully! Review the following tips before handling:

1. Read and follow carefully the Material Safety Data Sheet (MSDS).
2. **NO SMOKING** near these products or any other associated materials.
3. **Always wear eye protection**, gloves, face shields and protective clothing.
4. **Always wear respiratory protection equipment.**
5. Use in a well-ventilated area.
6. Never dilute with any type of material.
7. Do not expose these materials to any form of heat such as direct sunlight, steam pipes, radiators, open flames, or sparks.
8. Always store at or below 77°F and out of sunlight in a cool, well-ventilated place.
9. **Store separately from catalyst.**

### 3. Acetone

Acetone is widely used to clean uncured resin from application equipment and clothing. Acetone is **FLAMMABLE** and should be handled carefully! Review the following tips before handling.

1. Read and follow closely the Material Safety Data Sheet (MSDS).
2. **NO SMOKING** near any Acetone container.
3. **Always wear eye protection**, gloves, face shields and protective clothing.
4. **Always wear respiratory protection equipment.**

5. Use in a well-ventilated area.
6. Do not mix with catalyst.
7. Do not expose Acetone to any form of heat such as direct sunlight, steam pipes, radiators, open flames, or sparks.
8. Vapors from this product may travel or be moved by air currents and ignited by pilot lights, smoking and other sources of ignition. Vapors may flash back explosively.
9. For safety, keep out of immediate work area.
10. When flushing or cleaning spray equipment, make sure heater has been turned off and has adequately cooled off.
11. Make sure Acetone containers and spray equipment are adequately grounded before pouring or flushing.

## **First Aid Measures**

See First Aid section in the Material Safety Data Sheets (MSDS).

## **Fire Safety**

Polyurethane foam insulation may present a fire hazard if exposed to fire or excessive heat (i.e. cutting torches, arc welders). Accordingly, exposed polyurethane foam must be covered as soon as possible.

Notify any personnel or building trades working in the area that no welding or hot work is allowed until the Staycell® 245-2.0 Spray Polyurethane Foam and the Stayflex® 2505 Thermal Barrier Coating application is complete.

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

In order to achieve optimal adhesion, the Staycell® 245-2.0 Spray Polyurethane Foam should be covered with 1/16 inch Stayflex® 2505 Thermal Barrier Coating within 24 hours.

## **Ventilation**

Adequate ventilation of the immediate work area is necessary to minimize vapor concentrations. Consult the MSDS sheets to determine vapor exposure limits and flammability limits. For contractor applications, ventilation is normally achieved through portable, mechanical exhaust equipment. Portable test equipment is available determine concentrations of organic vapors present in the air during application process.

## **Personal Protective Equipment**

Respirators: All persons spraying or working in areas where organic vapors are present should wear an approved respirator. The use of forced fresh air hoods is recommended. Respirators should be regularly inspected, cleaned and disinfected in accordance with the contractor safety program. Refer to OSHA Standard 1910.132, 190.133 and 1910.134 for specific requirements.

Protective Clothing: Protective coveralls and gloves should be worn to prevent contact of the materials with the skin. Safety glasses must be worn at all times.

## Spills

Cover with sufficient quantities of an inert, non-combustible, absorbent material such as Vermiculite. Sweep or scoop up spill and place in approved container for disposal. Dispose of in accordance with all applicable local, state, and federal regulations.

## Daily Quality Control Requirement

Daily quality control procedures are required in order to ensure proper application of the Stayflex® System. Copies of the daily quality control records are to be submitted by contractor to PSI upon project completion.

## Equipment Set-up, Start-up and Operation

### Set-up

1. Review equipment list and verify all components have been received and assembled correctly.
2. Verify all fittings and connections have been tightened properly.
3. Pumps must be packed with all Teflon packings.
4. Verify equipment is properly grounded.
5. Make sure all equipment air valves are shut off. Hook up supply air. Compressor should be capable of 100 psi @ 165 cfm. Air dryers are recommended.
6. Make sure temperature control knob on heater is completely turned down.
7. Hook up power cord from heater to breaker panel. Heater is 220V, single phase, 30 amps.

### Initial Start-up

1. Make sure all air valves are closed and regulators are turned to zero.
2. Agitate coatings thoroughly before spraying.
3. Fill packing cups with throat seal lubricant (TSL).
4. Place transfer pump in drum.
5. Disconnect material hose from gun and hold end of material hose over a separate container such as a 5-gallon pail. Open air valve and slowly increase air pressure to transfer pump. Continue to increase pump pressure until material begins to flow out the end of the hose. Pump several gallons into pail until the material runs free of any contaminants that may be inside spray equipment (oil, dirt etc.). Turn off air pressure to transfer pump.
6. Connect material hose to spray gun. Open air valve to transfer pump. After several strokes, transfer pump should stop. Line is now full. If transfer pump does not stop, check for leaks and adjust accordingly.
7. Close air valve to transfer pump and open the pressure relief valve. Once the pressure has been relieved, close valve.
8. Unscrew top and fill catalyst receptacle.
9. Adjust catalyst slave pump to assure proper catalyst flow. Catalyst ratio is 1.5% of Stayflex® 2505 coating weight. For example, 9# of catalyst should be used per each 600# drum of Stayflex® ( $1.5\% \times 600\# = 9\#$ ). Upon first use pump should be calibrated to determine proper setting on slave pump, which is typically between 2.5 and 3.5.
10. Disconnect the catalyst slave pump arm from the bracket that is connected to the main pump shaft by removing the cotter pin.

11. Hold the end of catalyst hose over the catalyst tank. Begin to manually reciprocate the catalyst slave pump arm. Continue to pump manually until catalyst flows out of hose evenly without any air bubbles or pockets.
12. Connect catalyst hose to gun. The catalyst system is now full. Put lid back on catalyst receptacle.
13. Re-attach the catalyst slave pump arm by sliding the arm back over the bracket connected to the shaft of the main pump and re-insert cotter pin.

## Daily Start-up & Operation

**Note: Daily re-circulation Steps 2-9 are only necessary for spraying the Stayflex® 2505 Thermal Barrier Coating.**

1. Agitate material thoroughly before use.
2. Disconnect the catalyst slave pump arm by removing cotter pin, sliding the arm off the bracket.
3. Loosen fitting and remove coating hose from where it attaches to the spray gun and hold the end of the hose over the drum.
4. Open air valve and adjust transfer pump pressure to 80 psi.
5. Open air valve and adjust pressure on main pump until it begins to cycle slow.
6. Adjust material heater and re-circulate until material reaches desired temperature. Temperature of material coming out the spray gun should range between 90-110 ° F. This normally takes about 15-20 minutes.
7. Once desired temperature is achieved, turn off air to both transfer and main pumps.
8. Re-attach material hose to the spray gun.
9. Re-attach catalyst slave pump arm to bracket and re-insert cotter pin.
10. Open air valve and adjust the catalyst atomizing air to 30 psi.
11. Insert the spray tip/catalyst assembly.
12. Over a piece of cardboard or plastic, **NOT OVER THE MATERIAL DRUM**, pull trigger. Check and adjust catalyst flow. There are two balls inside the glass catalyst flow meter. The balls should rise when trigger is pulled indicating catalyst flow.
13. Slowly increase main pump pressure. Pull trigger and spray. Check spray pattern.
14. Continue to increase main pump pressure until good spray pattern is achieved.
15. Begin spraying.

## Daily Shut-Down

1. Turn knob on heater all the way down and turn off electricity at the breaker.
2. Turn off supply air. Close all air valves and bleed off any remaining air pressure.
3. Open pressure relief valve to release coating material pressure. Engage trigger lock.
4. Remove spray tip – catalyst assembly and clean thoroughly with Acetone.
5. Clean out hex head forward of material needle with Acetone and pack with lithium grease.
6. Shut-down is complete.

## Daily Guidelines/Reminders

### Materials

#### Stayflex® 2505 Thermal Barrier Coating

1. Mix thoroughly to achieve a uniform consistency and lowest viscosity. Remix as necessary during spraying.
2. Yield is approximately 25 square feet per gallon @ 1/16" thickness.

## Staycoat® 2510Gelcoat Topcoat

1. Mix thoroughly to achieve a uniform consistency. Remix as necessary during spraying.
2. Yield is approximately 150 square feet per gallon @ .010" thickness.

## Equipment

### Heater

1. Adjust heater so Stayflex® 2505 Thermal Barrier Coating is 90-110° F at gun.
2. Turn heater to 5 when stopping for more than 15 minutes to avoid overheating.
3. Disconnect electric power when not in use since Stayflex® 2505 Thermal Barrier Coating heated for several hours can harden.

### Pumps

1. Run transfer pump at lowest pressure that keeps main pump supplied with material. Usually 60-90 psi.
2. Run main pump at lowest pressure that adequately atomizes the material.
3. Maintain sufficient throat seal lubricant in cups. Maintain suitable oil levels in pump oilers.

### Strainers

1. Check daily; clean as necessary. Use 30 mesh screens.

### Catalyst Slave Pump

1. Always wear gloves and eye protection when working with catalyst. Have eye wash nearby. See MSDS sheet for proper handling instructions.
2. Don't let catalyst level get below draw tube in catalyst reservoir.
3. There is an upper and lower ball within the catalyst flow meter. This provides a visual check for catalyst flow during spraying. The balls are pushed upward by the flow of catalyst as it is being sprayed. If the balls do not rise when the trigger of the spray gun is pulled, catalyst is not flowing and spraying must stop until corrective action is taken.

### Atomizing Air for Catalyst

1. 25-35 psi of air pressure is used to atomize the liquid catalyst for integration with the coating at the spray tip.
2. If the atomizing air pressure is too high, it can blow the catalyst out of the spray pattern, causing undercatalyzation and improper cure.
3. If the atomizing air pressure is too low, dripping of the catalyst will occur at the spray tip, which will also result in undercatalyzation and improper cure.

### Spray Gun

1. Always engage the trigger lock when not spraying. Airless spray equipment can inject coatings into the body at high pressures.

Application Issues

1. Spray gun should be held as close as possible to the surface being sprayed to "wet out" the coating and attain a smooth surface.
2. When spraying the Stayflex® 2505 Thermal Barrier Coating, minimize interruptions to spraying to avoid losing heat, which may require re-circulation to regain heat.
3. When use temperatures are more than 20 degrees higher or lower than spray temperatures, control joints may be necessary to minimize cracks resulting from expansion or contraction.

**Equipment Troubleshooting**

<b>Problem</b>	<b>Suggested Causes and Remedies</b>
Poor spray pattern...	Check air pressure, cfm, length of hose, hose diameter, tip size, wear on tip, material viscosity/temperature.
Poor catalyst flow...	Catalyst receptacle empty. Draw hose of catalyst slave pump not submerged . Check air supply. Rupture of catalyst hose. Catalyst ports at gun clogged.
Cavitating pumps...  Gun leaks – material...  Gun leaks - catalyst...	Check that balls are moving freely and are clear of any debris. Material viscosity is too high/cold. Clean material strainers.  Worn seat or seals, clogged or bent needle; needle is out of adjustment; loose connections. Check needle travel.  Worn seat or seals; damaged or clogged valve; trigger is out of adjustment; loose connections; gun head is out of alignment; atomizing air is too low; damaged catalyst assembly.
Material (none on downstroke)...	Foot valve dirty or clogged.
Material (none on upstroke)...	Packings are worn; piston ball and seat are dirty or worn; pump cylinder is worn.
Plugged filter screen...	Plug is due to normal build-up. Screens and pumps must be cleaned periodically.
Pump cycles when gun is not in use...	Drum empty. Worn packing; bottom check ball not seating. Check connections and hoses for leaks.
Slow/poor cure...	Improper catalyst/material mixture or oil/water contamination. Check gun trigger for proper activation. Calibrate catalyst flow. Atomizing air is too high...blowing catalyst out of material stream.
Tails in spray pattern...	Pump pressure is too low; worn tip; tip is too large; viscosity is too high.
Tips spitting or trigger will not shut off...	Worn seat; worn needle or dirty packing. Check needle travel.



Trigger stiff...	Bent needle; bent trigger; worn needle guide, worn/dirty o-rings. Lubricate.
Pumps not working...	Check air supply. Worn packings. Pump not flushed properly after use. Spray hose/gun plugged. Pumping without any material. Keep idle pump shaft in down position to keep dried material from damaging packings. Rebuild fluid/air section of pump.

## Maintenance

To protect your investment and assure proper operation of the equipment, establishing a maintenance program is essential. It should include the following:

1. Keep an inventory of spare parts on hand for gun, pumps, hoses, strainers, catalyst slave pump, heater, etc.
2. If equipment is not to be used for more than 2 weeks, circulate fresh material or flush out. To flush, use 5-10 gallons of flush resin followed by 5 gallons of acetone to clean system of either the Stayflex® 2505 Thermal Barrier Coating or Staycoat® Gelcoat Topcoat. The acetone can be left in the lines until future use. Clean all strainers and cap all lines.
3. Note, inspect and correct any component of spray system not in proper working condition. Check hoses for kinks, clean strainers, rebuild guns, check for leaks. Clean spray tips and nozzle assembly.
4. Repack pumps, air motors, etc. in accordance with pump manufacturer's maintenance schedule.
5. Shut-down properly. Close all air valves and turn regulators to zero. Bleed pressure from lines. Store pump shaft in down position to keep wet.
6. Store equipment in a cool, clean and dry environment.

### Notice

All statements, information and data given herein are believed to be accurate and reliable but are presented without guaranty, warranty and responsibility of any kind expressed or implied. The user should not assume that all safety measures are indicated or that other measures are not required.

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