



Tropical Roofing Products-CONCRETE – 3.0#924

Built On The Principles of Quality & Integrity

PART I – GENERAL

SUMMARY

1. A highly reflective Fluid Applied High Solids Silicone Coating System used to restore existing or new structural concrete roof. This restoration system is applied directly over the existing substrates eliminating the need for roof tear offs. This restoration system will significantly reduce roof temperatures and energy costs. When used in this specification over a new or existing concrete roof, a seamless, monolithic roof system is achieved.
2. This specification is not intended for use over prepared Tar, Gravel and/or smooth APP membrane, please consult Tropical Roofing Products technical service department for more information.

SUBMITTALS

1. Technical Data Sheet (TDS) and Safety Data Sheet (SDS) for all products used on project.
2. Drawings indicating scope of work and roofing details.
3. Sample Warranty (optional, see warranty section below).

QUALITY ASSURANCE

1. Contractor shall be an approved applicator by Tropical Roofing Products who has a general knowledge and understanding of standard roofing practices as defined by the NRCA.
2. Prior to starting the application of the coating system, there will be a project conference with the owner's representative to assure a clear understanding of the specifications. The conference shall be attended by the Contractor and by Tropical Roofing Products Rep.

APPLICABLE PUBLICATIONS

1. **ASTM D6694** – Standard for Liquid-Applied Silicone Coating Used in Spray Polyurethane Foam Roofing Systems.
2. **Cool Roof Rating Council (CRRC)** – Licensed Seller ID 0656.
3. **UL 790** – Class “A”. Refer to the UL directory information.
4. **Miami Dade NOA** – Pending
5. **California Title 24 Part 6, Compliant** - Can be used to comply with **Title 24 high efficiency** requirements (Eterna-Sil #924/#923).
6. **Florida Building Commission FBC** – Approved

DELIVERY, STORAGE AND HANDLING

1. Materials damaged during shipment, delivery or storage shall not be used on this project without approval of TRP.
2. Store #924 Eterna-Sil silicone roof coating containers between 50°F and 80°F. Other materials shall be stored in accordance with the appropriate material's TDS.
3. Keep all products out of direct sunlight and protected from extreme temperatures.
4. SDS and TDS for all materials used on this project will be kept on site and reviewed by appropriate personnel before use.

CONCRETE

#924 ETERNA-SIL SILICONE COATING

- Single Coat Application
- Recoatable
- Apply over Existing surface
- Tough - Flexible - Strong
- Light Weight - Seamless - Smooth
- Energy Efficient Reflective Surface
- Tax Benefits; Renewable
- Tack-free time: < 8 hrs, RH dependent
- Excellent chemical resistance
- Can apply up to 1-2 hours before rain
- Low temperature application possible
- Withstands incidental ponding-water conditions .

WET APPLICATION REQUIREMENTS/100 SQ. FEET OF SURFACE*

System Component	Gallons
2. #924 Eterna-Sil Silicone High Solids	3.0

SYSTEM IN DRY MILS PER 100 Sq. Ft OF SURFACE

1. Coating Surface Area with #924	45 mils
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COMPONENT PERFORMANCE REQUIREMENT & TEST METHODS

#924 Eterna-Sil Property	Test Method	Value
1. Tensile Strength @ 73°F	ASTM D2370	>240 psi
2. Elongation at Break @ 73° F	ASTM D2370	>270%
3. Tear Resistance @ 73° F	ASTM D-624	>23 lbf/in
4. Volume Solids	ASTM D-2697	>95%
5. Weight Solids	ASTM D-1644	>96%
6. Full Cure Time		8-72 hours
7. Tack Free Time	RH Dependent	< 8 hours
8. Application Temp	Ambient	40° F to 120° F
9. Initial SRI Value		110

*Note: Wet and dry film values shown are approximations and can vary depending on surface conditions.

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WARRANTY INFORMATION

1. **Limited labor & material warranty:** A manufacturer's limited labor & material warranty is available on approved projects.
2. **Limited warranties:** are not available for continuous immersion service; cryogenic, freezer or cold storage facilities; or over existing wet roofing materials. Other limitations may apply.
3. **Inspections:** Pre-job inspection, adhesion test, and final quality control roof inspection are required, and will be performed with TRP Representative for all warranted labor and materials projects.
4. **Warranty submittals:** TRP Warranty Pre-Approval Application and adhesion results are required for all warranted projects.

PROJECT CONDITIONS

1. All mechanical units, skylights, vents and other rooftop accessories should be in place prior to preparation and coating application.
2. Cover all surfaces not to be prepared and/or coated to prevent overspray damage. Use wind screens as appropriate.
3. Review existing and imminent weather conditions (including potential for extreme temperatures, relative humidity, frost, dew, and precipitation) to assure that coating and accessory material will have sufficient curing time.
4. Temperature at the time of application of the #924 Eterna-Sil silicone roof coating application should be above 40°F to allow coating to be cured properly. Contact TRP Representative if applying to #924 Eterna-Sil silicone roof coating to roof substrate temperature above 120°F.
5. Protect #924 Eterna-Sil silicone roof coating from foot traffic or other potential abuse during the curing process. The coating is considered cured when it is tack-free and sufficiently durable to withstand foot traffic.
6. All work performed under this guide specification must be in accordance with all local, state and federal regulations.
7. A moisture scan may be required to validate that the underlying roof system insulation is moisture free.
8. Air intake, vents, blowers, air conditioning units and evaporative coolers shall be shut down for the entire project.
9. **Treatment of Ponding Water Areas:** #924 Eterna-Sil silicone coating withstands ponded water up to 72 hours, however the National Roofing Contractors Association (NRCA) considers ponding water on any roof undesirable and recommends that all roof systems be designed and built to ensure positive drainage. Corrective action should be considered, prior to application of #924 Eterna-Sil silicone roof coating, to correct existing ponding conditions and/or drainage deficiencies.

PART II – PRODUCTS

MATERIALS

#924 ETERNA-SIL PREMIUM 100% SILICONE ROOF COATING is a professional grade 100% Silicone roof coating. This product is a high performance, solvent free, high solids, single component, moisture cure liquid applied silicone coating. #924 Silicone is an elastomeric yet vapor permeable membrane exhibiting outstanding weathering and water resistance for application over itself and other silicone roof coatings on architectural surfaces such as vertical walls, BUR/Mod-Bit, masonry, structural concrete, metal, single-ply membranes and sprayed-in-place urethane foam (SPUF) systems.

#9400 ETERNA-SIL SILICONE ROOF MASTIC is a premium silicone multi-purpose mastic for protection of seams, penetrations, and fasteners on various architectural surfaces and roofing substrates. Upon cure, #9400 forms a durable, breathable and weatherproof barrier that is highly resistant to degradation from UV and natural weathering.

#970 ETERNALASTIC CONCRETE PRIMER is water based Eternalastic concrete primer applied over the concrete to prepare the surface for maximum performance and adhesion. #924 roof coating should not be applied to unprimed concrete.

#652 Ultra Green Roof Wash All Purpose Cleaner: is a highly versatile industrial cleaner & and degreaser and is a safer alternative to toxic cleaners, bleaches & solvents. The concentrated formula cleans, degreases & deodorizes without harsh chemicals. The formula is non-toxic, non-abrasive, non-corrosive and safe for use on all water-safe washable surfaces.

TRP-1 ULTRA SEAL is a silyl-modified polyether high-performance, multi-purpose, low VOC, single-component construction adhesive/sealant designed for bonding and sealing a wide range of porous and non-porous construction materials. NOT INTENDED FOR USE ON TPO. TRP-1 forms a superior waterproof seal to most roofing materials including metal flashings, copings and skylights.

Polyester Fabric #932 Fabric is non-woven, spun bonded 100% that covers 10 squares per roll, firm or soft. Tropical Roofing Products #932 is available in various widths and used with #9400 Eterna-Sil Seam Sealer to reinforce seams, penetrations, joints or transitions that are subjected to high shear.

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PART III - EXECUTION**SURFACE PREPARATION**

1. Preparation of the roof substrate is the responsibility of the installer, who shall address and correct all the conditions listed in this section. Examine substrates to receive new roofing. Do not proceed with the installation of the Tropical Coating System until unsatisfactory conditions have been corrected in a manner acceptable to TRP.
2. Concrete must be completely cured a minimum of 28 days. Moisture content must be the equivalent of 3 lbs. or less per 1000 sq. ft. using ASTM F1869 Calcium Chloride Standard Test Method testing, or 75% or less relative humidity using ASTM F2170 Standard Test Method for determining relative humidity in concrete.
3. Apply a 12" x 12" test patch of the silicone coating system prior to full roof surface installation to ensure adequate adhesion. Please refer to test patch application instructions.
4. Inspect, repair or replace all roof edge detail.
5. All areas that are to be coated or repaired must be clean, dry and free of dust, dirt, grease, wax, or other incompatible substances to promote satisfactory adhesion.
6. **Membrane Cleaning:** Mix and dilute #652 Ultra Green with water at a 10:1 ratio. Thoroughly power wash diluted Ultra Green Roof Wash from surface and allow to thoroughly dry prior to proceeding Seam Sealing all Penetrations.

FLASHING APPLICATION & REPAIR WITH #9400 ETERNA-SIL

1. After completion of substrate preparation, all flashing details, penetrations and curbs shall be covered with #9400 Eterna-Sil at 1/8" thick and shall be feathered at the edges for the water to flow over the various flashing details.
2. **Blisters/Splits:** Large splits/blisters are required to be repaired use #932 polyester Reinforcing fabric with #9400 Eterna-Sil Seam Sealer at 1/16" thick in a three-course fashion and spread to 2" to 4" beyond the splits/blisters areas.
3. **Membrane Repair:** Thoroughly inspect the roof substrates for defects (holes and openings). For repairs over 1/8" wide, use #932 polyester Reinforcing fabric with #9400 Eterna-Sil Seam Sealer at 1/16" thick in a three-course fashion and spread to 2" to 4" beyond the repaired areas.
4. **Roof Drains:** Remove clamping ring and clean all existing build-up from around the drains and sumps. Apply #9400 Eterna-Sil across the entire drain/sump area. Extend the application into the drain bowl from center of drain onto the deck 6" beyond drain sump. Allow to cure. Replace clamping ring. The silicone coat application shall be applied over the #9400 Eterna-Sil.
- 5.

6. **Curb Flashings:** All curb flashings shall be dressed in at least a 2" wide x 1/8" thick of #9400 Eterna-Sil.
7. **Fasteners:** Encapsulate all fasteners using #9400 Eterna-Sil or TRP-1 MS Polymer Sealant ensuring a water tight seal from the base to the top of the fastener.
8. **Penetrations:** #9400 Eterna-Sil Seam Sealer shall be applied around the base of the penetration, extending at least 4" onto the vertical and 4" onto the base. Use additional #9400 Eterna-Sil as necessary to accommodate the shape of the penetration.
9. **Seams:** All seams and areas around roof protrusions (vents, scuttle hatches, etc.) are to be treated with #9400 Eterna-Sil Seam Sealer at 1/8" thick to achieve a watertight reinforced seal.
10. **Pitch Pans:** Pitch pans shall be covered using #9400 Eterna-Sil.
11. **Curbed AC Units:** All curb flashings shall be covered with at least a 2" wide x 1/8" thick of #9400 Eterna-Sil Seam Sealer. The perimeter shall be flashed with #9400 Eterna-Sil Seam Sealer.
12. **Skylights** All exposed skylight fasteners shall be covered with #9400 Eterna-Sil. All curbed corners joints shall be covered with #9400 Eterna-Sil at least 2" wide x 1/8" thick.
13. Inspect Preliminary Work / Flashing Details for problem areas (e.g., gaps, cracks, fish mouths, air pockets, etc.) before proceeding to the application of #924 Eterna-Sil silicone coating.

#924 ETERNA-SIL 100% SILICONE:**DO NOT DILUTE, THIN OR FREEZE THE PRODUCT[S]**

Weather Restrictions: #924 Eterna-Sil silicone coating is not to be used when weather conditions are below 40°F, or when there is a chance that temperatures will fall below 32°F within a 24-hour period after application.

1. When product is in 5-gallon pails, use a 3" min diameter-mixing blade. Hand mixing with a suitable mixing blade is acceptable. When product is in drums, use a 6" min diameter-mixing blade. **DO NOT OVER-MIX.**
2. Containers are packaged with a layer of nitrogen gas to keep latent moisture from prematurely starting the curing process. After opening a container, apply immediately, or reseal with a layer of nitrogen gas.

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Coating Application of #924 Eterna-Sil 100% Silicone:

1. #924 Eterna-Sil Silicone Coating may be sprayed, brushed, or rolled.
2. Do not apply coating when moisture is present on the substrate or if rain is expected before coating will properly cure.
3. Wind barriers shall be used if wind conditions could affect the quality of the material being applied.
4. The recommended gallons for minimum mil thickness is a guideline and should be verified by the contractor to ensure that the minimum mil thickness is applied to the roof surface.
5. Coating must be evenly applied and pinhole-free.
6. Coating must be extended beyond the substrate to create a self-terminating flashing.

Minimum Application Thickness:

1. #924 Eterna-Sil coating thickness shall be 45 Minimum TDM (Total Dry Mil).
2. Application rates must be checked periodically to assure proper coating thickness. This may be done with a wet film gauge, or by checking coverage of a known quantity.
3. Contractor should estimate coating requirements based on actual experience and needs to figure losses due to applicator experience, surface texture, wind, waste, and other factors increasing estimated gallons required.

Poured-In-Place (roll or squeegee) Application Option #924 Eterna-Sil Coating:

1. Use 3/8" to 1" nap rollers.
2. Use smooth or notched squeegee
3. Use short bristle brush/roller on smooth substrates.
4. Use longer bristle brush/roller on rough substrates.
5. After the #9400 Seam Sealer are thoroughly cured, pour base coat onto roof in a narrow pass for approximately 20 feet and spread with the squeegee or 18" applicator brush at an application rate designed to achieve the required minimum 45 TDM (Total Dry Mil).
6. Immediately back-roll the area evenly with an 9"-18" x 3/8"-1" nap roller, perpendicular to the squeegee pattern. (Care should be taken to back-roll immediately before coating begins to dry).
7. Note: Temperature, coating type, applicator technique, substrate, as well as other factors will affect coating thickness.
8. The #924 Eterna-Sil coating shall completely cover the expansion joint covers, parapets and flashings applied at an application rate designed to achieve the required minimum 45 TDM.

Spray Application Option: #924 Eterna-Sil Silicone Coating Pump Minimum Specification to Apply #924 Silicone:

1. High-pressure airless pump capable of producing a minimum of 4000 PSI at the spray gun head should be used.
2. The pump should have a min of 3 gallons per minute output and be fed by a 5:1 transfer pump to prevent cavitation.
3. Always use components rated for pump pressure.
4. Hoses should be BUNA-N jacketed for prevention of moisture contamination.
5. Hoses should have a minimum I.D. of 3/4" and an adequate working pressure.
6. The spray gun should be high pressure (5000 PSI) with reverse-a-clean spray tip.
7. The spray gun should also have a minimum orifice of .030 and a 50° fan tip.
8. **DO NOT USE** hose that has been used for acrylics or emulsions, as the liner may absorb moisture and initiate the silicone curing process.
9. Spray #924 Eterna-Sil Coating at an application rate designed to achieve the required 45 TDM (Total Dry Mil) for the project. Contractor needs to figure losses due to surface texture, which will increase estimated material requirements.
10. Pay special attention to overspray, which can texture or discolor finished sections. Wind direction should conduct overspray away from finished roofing surfaces.

FIELD QUALITY CONTROL

1. Maintain Job Progress Report / Daily Log of work completed as required to assure installation is in accordance with manufacturer requirements.
2. Provide on-the-job inspections, technical assistance and material application guidance as may be necessary to complete roofing material application in accordance with Tropical Roofing Products warranty requirements.

JOB COMPLETION

1. Inspect completed coating system and correct all defects to meet the specification and/or warranty requirements.
2. **Transparent or Thin Areas:** If areas appear to be undercoated, recoating may be needed to ensure final thickness to meet the Tropical Roofing Products Specifications Minimum Total Dry Mills.
3. **Delamination:** Verify that all coated areas appear to be fully adhered to the substrate. Complete a visual inspection for typical signs of poor adhesion such as flaking, blistering etc. Recoating will be required if such areas are apparent.

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4. **Pin Holing:** Certain job or site conditions may result in pin holing or off gassing during curing or cause pin holes in the substrate. Again, a visual inspection looking for typical signs of off gassing such as excessive pockmarks, pinholes etc. should be done.
5. **Texture Finish:** Heavy patterns, blistering, “skinning,” etc. may appear in the final finish. Check with Tropical Roofing Products Technical Representative for remedial advice.
6. Restrict foot traffic and equipment movement on the completed coating system to essential personnel and only after 72 hours of the completion of the coating application. Provide appropriate protection against traffic and construction activities on completed roofs. Damage to the roof by other trades shall not be the responsibility of Tropical Roofing Products.

HOUSEKEEPING ITEMS

1. Contractor shall take photographs of representative roof areas, including detail work before work commences, after the surface has been properly prepared, after all flashing and detail work has been performed, and after the application of the #924 Eterna-Sil coating.
2. Installer shall provide the following support for on-site inspections by a representative from Tropical Roofing Products (list is not comprehensive):
 - a. Representative from the contractor's company who has authority to make binding decisions.
 - b. Required means to access all areas of the treated roof.
 - c. Previous photographs of the roof.
3. Installer shall take special care when moving spray hoses and other equipment on the roof to prevent damage to the flashing work and encapsulated fastener heads.

REPAIRS

If the #924 Eterna-Sil Coating is damaged or punctured, repairs are to be performed using #9400 Eterna-Sil as follows:

- a. Damaged areas are to be cut, cleaned and dried.
- b. Apply #9400 Eterna-Sil, and feather out onto the existing #924 Eterna-Sil coating with a minimum of 2-4 inches beyond the existing coating.

CLEAN UP

1. Remove masking and protection tapes.
2. The HVAC vents and units can be opened and restarted once the spray operation is complete.
3. Remove all roof related trash and debris from jobsite.
4. Dispose of containers in accordance with local regulations.
5. For application questions, please contact Tropical Roofing Products at 1-877-827-2622.

ENGINEERING

Tropical Roofing Products does not practice Engineering or Architecture. Any review of the building's construction or inspection of roof plans or inspection of the building's structural roof deck by Tropical Roofing Products representatives shall not constitute any warranty by Tropical Roofing Products of such plans, specifications or construction. Any roof inspections are solely for the benefit of Tropical Roofing Products.

MAINTENANCE

To maintain your warranty coverage and ensure that your roof will continue to perform to its fullest during the entire time of the warranty, always adhere to Tropical Roofing Products Care and Maintenance program and guidelines.

LIMITATIONS


Eterna-Sil #924silicone roof coating should not be considered for:

1. Use on pedestrian, deck or frequent traffic bearing surfaces.
2. Cold storage roofing application without vapor barrier, cryogenic tank applications, or continuous water immersion service.
3. Unprepared surfaces including but not limited to those that are wet, dusty, oily, mildewed, heavily chalked, blistered or otherwise structurally unsound.
4. Building materials that might bleed oil or solvents. These include, but are not limited to, certain vulcanized rubber products, tapes, failed sealants, some caulking compounds and asphaltic/mastic materials unless appropriate preparation or primers are used. Consult Tropical Roofing Products technical services for primer recommendations.
5. Surfaces where adhesion has not been verified by testing.
6. Inclement weather may negatively affect uncured Eterna-Sil #924 silicone roof coating by displacement of uncured material; therefore, application of coating should not proceed if heavy rain, hail or snowfall is impending or expected within 24 hours of application.
7. Eterna-Sil #924 silicone roof coating requires atmospheric moisture for propagation of cure thus it is not suitable for use in totally confined spaces.

IMPORTANT:

The applicators strict adherence to this specification is the only way Tropical can ensure that this product will perform as intended. Accordingly, any changes made to specifications must be reviewed, approved in writing and signed by Tropical Roofing Products Director of Manufacturing & Technical Services prior to application.

End of Section
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