



Technical Data Sheet

PRO-SIL® LS SILICONE TOP COAT

100% SILICONE WATERPROOFING COOL ROOF COATING

PART 1: GENERAL INFORMATION

1.1 PRODUCT DESCRIPTION

BULL-BOND® PRO-SIL® LS is a 100% silicone, elastomeric, ultra-white cool roof coating, with 82% solids, formulated to seal, protect and waterproof roofs in extreme tropical climates. PRO-SIL® is an inorganic coating material manufactured of pure silicon rubber. It is completely inert to bacteria, fungi and algae growth, therefore resistant to permanent ponded water conditions. The chemical composition of PRO-SIL® makes it extremely durable and cleanable for the entire roof life. PRO-SIL® high reflectivity is due to the coating's ultra-white finish that reflects the sun's heat and UV rays. PRO-SIL® LS cools the roof surface, reducing interior temperatures and AC cooling costs.

1.2 BASIC USES:

- Waterproofing Silicone Cool Roof Coating
- BULL-BOND® PRO-SIL® LS is suitable for exterior conditions on horizontal and vertical surfaces for the previously mentioned application.

1.3 SUITABLE SUBSTRATES:

Product may be applied directly to clean and dry surfaces like masonry, concrete, metal, single-ply membranes and spray-in-place urethane foam. The following roof surfaces are compatible with PRO-SIL® LS TOP COAT:

- Acrylic Roof Coatings
- Polyurethane Roof Coatings
- Concrete and Masonry
- Asphalt Roofing Membranes Granulated
- Cement Board
- Galvanized Steel and other Metal Surfaces

- Existing Silicone Coating Recoat
When re-coating an existing silicone coating it is compulsory that the substrate is completely power washed, cleaned with degreaser detergent, and dried before PRO-SIL® LS Top Coat is applied.
- Existing Roof Systems:
 - Good adhesion can be obtained over existing roof systems using the info above. Nevertheless, the final adhesion of the PRO-SIL® will depend on the adhesion level of the previously applied roofing material.
 - Field adhesion testing is mandatory for marginal substrates and for recoating roof surfaces with unknown materials. See the following site for more information: <http://bullbond.com/adhesiontesting/>

1.4 ADVANTAGES:

- 100% Silicone rubber
- Ultra-white finish lowers roof temperature
- Promotes cooling energy savings
- Inorganic material
- Outstanding ponded water resistance
- Inert to bacteria, algae and fungi growth
- UV resistant
- Mildew, fungi and algae resistant
- Elastomeric Silicone Rubber Membrane
- Excellent coverage
- Permanent flexibility
- NSF P151 Certified For Rainwater Catchment Roofs

1.5 LIMITATIONS

- Do not apply PRO-SIL® LS Top Coat over PRO-SIL® Primer.
- Do not apply when air temperature exceeds 105°F (40°C).
- Do not apply to wet or damp roof surfaces or if RH is greater than 90%.
- Do not apply when it may rain or dew may condense on the roof surface before the coating can dry. All substrates must be completely dry without any surface moisture and must be 10°F above the dew point.
- Do not apply when air or surface temperature is below 50°F (10°C) or expected to fall before coating can cure.

PART 2: TECHNICAL DATA

2.1 PRODUCT CHARACTERISTICS:

PRODUCT CHARACTERISTICS	
BULL-BOND® PRO-SIL® LS TOP COAT	
COMPOSITION	100% Silicone Rubber
COLOR	Bright White
WEIGHT SOLIDS	78%-82% W
VOLUME SOLIDS	69%-71% V
DENSITY	11.60 lb/gal
VISCOSITY	8,000-10,000 cps @ 77°F (#5 Spindle 20 rpm)
VOC	< 250 grams/liter
DRY TIME	To touch: 2hrs Total cure: 8 hrs
SHELF LIFE	12 months
MAX. SERVICE TEMP	185°F (85°C)
FLASH POINT	>105°F (41°C)

2.2 MATERIAL PHYSICAL PROPERTIES:

MATERIAL PHYSICAL PROPERTIES		
PROPERTY	METHOD	BULL-BOND® PRO-SIL® LS TOP COAT
Dry Adhesion	(ASTM D903)	13.0 pli
Wet Adhesion	(ASTM D903)	10.0 pli
Tensile Strength	(ASTM D2370)	460 psi
Elongation	(ASTM D2370)	235%
Perms Water Vapor Transmission (WVT)	(ASTM E-96)	6.1 US perms
Water Absorption	(ASTM D-471)	0.1%W
Salt Spray Resistance	(ASTM B117)	No effect
Weathering	(ASTM D6694)	No degradation 5000 hrs
Fire Resistance	(ASTM E108)	Class A
Wind Uplift	(FM 4474)	900 psf
Fungi Resistance	(ASTM G21)	0 rating
Algae Resistance	(ASTM G29)	0 rating
Solar Reflectance	(ASTM C1549)	85% (initial)
		66% (3 years)
Thermal Emittance	(ASTM C1371)	0.85 (initial)
		0.90 (3 years)
SRI	(ASTM E1980)	106 (initial)
		86 (3 years)

PART 3: INSTRUCTIONS

3.1 ROOF INSPECTION AND VERIFICATION

A. Investigate if old waterproofing treatments or coatings are fully adhered. Delaminations, bubbles or detached areas require complete and immediate removal of the damaged material. Check new concrete roofs for curing compound residues.

B. Verify that all mechanical equipment, extractors, air conditioners, tanks, antennas and other articles are securely attached to roof. These objects should be raised in pedestals without obstructing the roof water drainage.

C. Verify how the roof drainage system is functioning and whether it is working efficiently. Check the condition of the drains and make sure they have the correct elevation. Mark the low spots on the roof, see if they have proper drainage to the roof drains and mark areas that remain with ponding water or bird baths.

D. Ensure that all air intake, ventilation ducts and air conditioning vents are suitably protected or closed.

E. Make sure that all critical areas in the vicinity of the application area are adequately protected.

F. Check for trees releasing organic matter (branches, seeds, leaves, etc.) that obstruct and/or clog the roof drains. Take the necessary measures to eliminate these pollutants from the roof.

G. Ensure that the roof slope and all water ponding issues can be corrected without applying excessive weight on the roof and adversely affecting the total cost of the project.

3.1.1 Concrete Roof:

A. Concrete surfaces to receive the waterproofing system must have a minimum of 3,000 psi compressive strength. Inspect the concrete roof and make sure it is firm, structurally sound and, with a CSP profile of 1-4.

B. Check for cementitious repairs or patches that are not fully adhered (Sounding test with hammer or chain drag). Verify for spalling or pattern cracking. Delaminated materials and faulty repairs require complete and immediate removal. (Follow ICRI recommendations for all structural concrete patching and repairs.).

3.1.2 Asphaltic Roofing Membrane:

A. Asphaltic membranes to receive PRO-SIL® waterproofing must be fully adhered to the original roof substrate. Delamination, bubbles, blisters and/

or detached areas require immediate repair or removal down to a sound substrate. Investigate whether the existing roofing materials, including insulation, are deteriorated and/or saturated with water. If this is the case, they require complete repair or removal down to a sound substrate. Mark all problematic areas on the roof for future localized repairs before application of the coating.

B. Verify whether the roof has moisture problems beneath the asphaltic membrane. If this is the case, these areas must be marked for later repair.

C. Check for liquid asphalt repairs or patches that are exposed with pattern cracking. If this is the case, these materials require complete and immediate removal.

D. Roofs with aluminum coatings or asphaltic paints must be given special attention. These surfaces create adhesion problems. Our recommendation is to remove completely asphalt aluminum paints before PRO-SIL® application.

3.1.3 Metal Roof:

A. Make sure that the metal roof to receive the waterproofing system is firm, sound and safe.

B. Inspect the roof metal panels for excessive rust and loss of integrity. Severely damaged metal roof panels need to be replaced. Make sure that all metal panels are sound and all screws tightly bolted before product installation. Metal panels with seam gaps greater than 1/16" must be stitched as tight as possible with metal screws and the seams reinforced with urethane sealants / coatings and polyester fabric mesh.

3.2 SURFACE PREPARATION

1. Wash the roof with a pressure washing machine of 3,000 to 4,000 psi.
2. To eradicate fungus, use regular bleach diluted with water at a ratio of 1:10 and rinse immediately to prevent absorption of chlorine into the concrete. Alternatively, you can wash the roof surface with an industrial detergent.

*It is important to dilute the bleach with water and wash the roof immediately. Never leave concrete or metal roofs with chlorine solutions or without thorough rinsing.

3.2.1 Concrete Roof:

1. The roof surface should be structurally sound, solid, completely clean, dry and free of dust, mold, oil, grease, and foreign material, with a CSP profile 1-4.
2. Identify, measure and mark all cracks and joints on the roof with a marker (wax crayon or chalk). Check the thickness, length and type of crack to continue later with the appropriate repair.
3. Identify all the surface imperfections, defects and/or unevenness on the roof profile (exposed aggregate, excessive roughness, pits, holes, craters).
4. Verify if the roof has moisture problems or excessive porosity and identify these sections in the roof for future repair.

3.2.2 Asphaltic Roofing Membrane:

1. Scrape off all exposed excess liquid asphalt and other contaminants. Remove all loose stones in BUR systems until obtaining a solid substrate of asphalt and embedded stone.
2. For granulated asphaltic membranes finishes, prepare a micro-topping mix with BULL-BOND® SABAKRETE™. Apply the polymeric micro-topping at a thickness of 1/16" to 1/8" across the entire roof surface including the parapet walls. Apply the mix using a squeegee, broom or slurry hand brush. Allow this cementitious layer to dry for 24 hours with air curing.

*In the case of other types of asphaltic membrane finishes it is mandatory to conduct a field adhesion test. Contact CONSPRO Corp. for technical assistance or check the following link: <http://bullbond.com/adhesiontesting/>

3.2.3 Metal Roof:

1. Replace all metal panels with excessive rust and loss of integrity. Tighten all loose fasteners or replace loose fasteners with an oversized version of the same fastener. Maintain the original fastening pattern design.

2. Identify, measure and mark all the metal panel seams in the roof. Tightly fasten all metal panels with seam gaps greater than 1/6" with stitch screw fasteners to reduce this gap as much as possible.
3. Loose scale and rust must be mechanically removed.
4. On corroded surfaces apply, an approved corrosion inhibitor and rust converter with a heavy-duty mop. Pressure wash the metal surface after this step or follow product instructions for use.
5. All-ways use the required safety fall protection equipment on all roof inspections.

3.3 SEALING CRACKS, JOINTS AND SEAMS:

3.3.1 Concrete Roof:

- A. All concrete roof cracks and joints must be detailed as follows before application of the PRO-SIL® silicone top coat. The following is the recommended procedure to repair cracks with a width of 20 mils or more:
- a. All cracks must be routed at 1/4" wide by 1/4" deep with an angle grinder using a diamond or carbide cutting blade.
 - b. Eliminate all dust on opened cracks using a vacuum cleaner or other dry method.
 - c. Apply an approved crack sealant inside the opened crack filling it entirely. Immediately use a spatula to press the excess sealant material towards the crack, leaving a band of 1"-2" wide.
 - d. Allow the sealant to cure for 24 hours or until 100% cured.
- B. Options to repair visible hairline cracks thinner than 20 mils:
- Option 1. Follow above procedure (A).
- Option 2. Using a spatula apply a 2" wide band with the approved crack sealant to a thickness of 30 mils.
- Option 3. Saturate the crack with BULL-BOND® Primer Plus™ or with a dilution of BULL-BOND® Elasto Acryl™ with water at a ratio of 1:1. Apply Pro-Sil® Primer over the dried BULL-BOND® Primer Plus or BULL-BOND® Elasto Acryl.

3.3.2 Asphaltic Roofing Membrane:

1. Application a mesh reinforcement detail coat along all seams, interfaces, termination points and joints. This consists of applying a 9" wide coat of PRO-SIL® Primer. Let it dry completely, then apply a 9" wide coat of PRO-SIL® Top Coat with a brush or roller at 60 ft²/gallon (300 ft²/pail) and immediately place the 6" roll of roof fabric mesh over the wet detail coat of PRO-SIL® Top Coat. Stretch the fabric, eliminating all wrinkles and air voids; do this until completely saturated. Let the detail coat dry. Apply a subsequent 9" wide detail coat of PRO-SIL® Top Coat at 100 ft²/gallon (650 ft²/pail), making sure that the roof fabric is completely saturated at the reinforced areas.

3.3.3 Metal Roof:

1. Application joint/seam sealant along all horizontal and vertical metal panel seams and interfaces filling them entirely. Immediately after, use a spatula to smooth out the sealant material and press down any excess material towards the seam/joint leaving a band 1"-2" wide.
2. Allow the sealant to cure for 24 hours or until 100% cured.

*All cracks, joints, seams and interfaces present on the roof must be completely repaired before applying the BULL-BOND® PRO-SIL® coating system.

3.4 CORRECTING DRAINAGE, DUSTING, WATER PONDING, SURFACE IMPERFECTIONS IN CONCRETE ROOFS:

1. Make sure that the roof drainage system is functioning properly.
 - a. Add drains where necessary and when feasible.
 - b. Lower concrete elevation between drains and low points to obtain efficient drainage when feasible.
 - c. Make channels between drains and low points when practicable. If a drainage channel is created with a chipping hammer or chisel, always give a smooth finish to the concrete surface using a repair mortar and if with BULL-BOND® SABAKRETE™.
 - d. Lower the elevation of any drain if necessary.
2. Correct any area where ponding water remains. Eliminate all water ponding using a repair mortar mix with BULL-BOND® SABAKRETE™ BULL-BOND® GENERAL REPAIR 2500™ or BULL-BOND® PRO-LEVEL®. Allow all water ponding repairs cure for at least 3 days.

*Read the application instructions of BULL-BOND® SABAKRETE™ repair mortar mix for water ponding, BULL-BOND® PRO LEVEL™, BULL-BOND® GENERAL REPAIR 2500™ available on our website: www.bullbond.com.

3. Correct all surface imperfections, defects and/or unevenness on the roof surface profile (exposed aggregate, excessive roughness, pits, holes, craters, etc.) using a repair mortar mix with BULL-BOND® SABAKRETE™.
4. Correct any concrete dusting and/or loose granules by resurfacing the roof using a micro-topping mix with BULL-BOND® SABAKRETE™, leaving a 1/32"-1/8" cementitious coating using a squeegee or brush.
5. Roof drainage, all surface imperfections and areas of ponding water must be fully corrected before applying the PRO-SIL® coating. Proper installation requires a good slope and minimal water ponding issues. Ensure that all the concrete roof surface meets a CSP profile of 1-4.

* Before proceeding with the application of the PRO-SIL® coating, ensure that there is good slope and absolutely no water ponding. Make sure that the substrate and all repairs are clean, firm, dry (cured) and fully adhered.

3.5 WATERPROOFING DETAILING AND TRANSITIONS:

1. Apply a joint sealant around any penetration or protrusion on the roof including all screws (bolts), pipes, rods, drains, roof mounted equipment and skylight installations.
2. Apply the joint sealant along all interfaces of the parapet walls, including horizontal (between roof and parapet) and vertical (between parapet and parapet).
3. Let sealants cure for at least 24 hours or until 100% cured.
4. Apply a seam reinforcement detail coat along all cracks, joints, seams and interfaces, applying a 9" wide coat of the adequate primer for the given surface at 250 ft²/gallon (1250 ft²/pail) followed by a 9" wide coat of an approved polyurethane basecoat or PRO-SIL® Top Coat with a brush or roller at 65 ft²/gallon (325 ft²/pail) and immediately place a 6" roll of roof fabric over the wet detail coat of PRO-SIL® Top Coat. Once in place incorporate the roof fabric into the wet coat with a brush or dry roller stretching the fabric, eliminating all wrinkles and air voids. Apply a subsequent detail coat of PRO-SIL® Top Coat to the reinforced seam at 65 ft²/gallon (325 ft²/pail) making sure that the roof fabric is completely saturated.

3.6 SILICONE TOP COAT APPLICATION

1. Use product only when substrate is completely dry without moisture and when ambient, material and roof surface temperatures are below 105°F and over 55°F. Do not use product if precipitation or dew is expected. Use with adequate ventilation. Relative humidity must be below 90%.
2. Mix PRO-SIL® LS Top Coat thoroughly before and during application (4 minute paddle mixing).
3. Apply one coat of PRO-SIL® LS Top Coat at 55 ft²/gallon (275 ft²/pail) or two coats at 110 ft²/gallon (550 ft²/pail). Square the area of application per product volume to be applied. Use markers to limit application sector. Spread evenly using a notched squeegee. Give proper termination using a roller (1"-3/4" nap), or a good quality nylon bristle brush to obtain a wet film thickness of 29 mils. If rolled, back roll the first coat to fill any pinholes in the treated surface.
4. Allow to dry at least 12 hours.
5. Apply more coats if necessary for additional DFT or if required for warranty.
6. A minimum total dry film thickness of 20 mils is mandatory to comply with the waterproofing warranty minimum requirements.

*Choose a sunny day to apply the fluid-applied Silicone waterproofing coating. It is not advisable to start the waterproofing product application after 3:00 pm. Before applying a second coat of PRO-SIL® Top Coat (Silicone over Silicone) the surface must be totally dry, with absolutely no residues of water or morning dew. If more than 24 hours have passed since the application of the first coat of silicone or if the silicone roof surface is contaminated with dust or foreign materials it is essential that the affected area is properly cleaned and solvent wiped, before re-coating with PRO-SIL®. Use xylene or an approved solvent with the required safety equipment, to solvent wipe the area to be recoated with silicone.

3.7 CLEANING

Clean all application equipment preferably with Mineral Spirits immediately after use. Other approved cleaning solvents may be Acetone or Xylene.

PART 4: PRECAUTIONS

Avoid breathing product vapors or mist. Use only with adequate ventilation. Can cause eye, nose and throat irritation. Could be harmful if swallowed. KEEP OUT OF REACH OF CHILDREN. Carefully read and follow all cautions and warnings on product label and SDS.

CAUTION

Cured PRO-SIL® produces slick and slippery roof surfaces when wet. Use extreme caution when walking on wet or damp PRO-SIL® roof surfaces. Roof deck walking paths are recommended for all commercial jobs to assure safety of service personnel in silicone treated roofs.

PART 5: APPROVALS

5.1 NSF Certification



NSF Protocol P151
Health Effects from Rainwater
Catchment System Components

PRO-SIL® is approved by NSF for use in Rainwater Catchment Systems according to NSF Protocol P151, Health Effects from Rainwater Catchment System Components.

*See listing at www.nsf.org for application and cure instructions for rainwater catchment use.

PART 5: WARRANTY / GUARANTEE

CONSPRO CORP. warrants, subject to the terms and limitations hereof, that Bull-Bond® PRO-SIL® LS Silicone will seal the treated roof against water infiltration for a period of 10 years when applied in accordance with all application procedures outlined in the product's technical data and will sheets. Purchaser or Building Owner must complete the warranty registration form to apply and obtain the PRO-SIL® performance warranty certificate. Failure to apply a DFT of less than 20 mils (0.50 mm) or to follow all currently published installation instructions or to comply with the PRO-SIL® Warranty documentation/registration program will render this warranty null and void.

CONSPRO CORP.'S LIABILITY

CONSPRO CORP.'s liability is strictly limited to refund the purchase price or to replace the defective material with an equal or similar product. If any material is found defective or not usable, CONSPRO CORP. will promptly replace the defective material to the purchaser or refund the purchase price.

WARRANTY REGISTRATION

For this warranty to be valid, the Building Owner must complete and remit a warranty application form, located at bullbond.com/prosilwarranty, within sixty (60) days of the purchase date. If warranty application is not received by CONSPRO CORP. within sixty (60) days of purchase, user waives all rights under the warranty and will not be entitled to any warranty claims.

NOTIFICATION OF CLAIM

All defective product claims must be received in writing within 30 days of the discovery of the fault. No claims will be considered without such written notice, without a valid warranty certificate, or after the specified claims time interval. CONSPRO CORP. will promptly investigate all properly reported

claims. Our investigator will prepare a written/oral report describing the nature of the problem and an explanation for the reported difficulties. An authorized officer of CONSPRO CORP. will handle all complaints and resolve any pending problems after this point.

LIMITED WARRANTY RENEWAL

This warranty is renewable at the option of the Building Owner. To qualify for warranty renewal, Building Owner must contact CONSPRO CORP. and request a roof inspection no later than 180 days prior to the expiration of the warranty term. A representative of CONSPRO CORP. will inspect the Product installation, roof condition and will recommend the recoat and/or repairs necessary for warranty renewal. Once the actions outlined in CONSPRO CORP.'s recommendation are completed, Building Owner may request the renewal of the product performance warranty. This warranty may be renewed throughout the lifetime of the building. Failure to contact CONSPRO CORP. to request the required inspection or requesting a renewal outside the warranty term voids the renewable warranty benefit. Warranty is renewable as long as renewals have occurred sequentially throughout the lifetime of the product and property.

WARRANTY EXCLUSIONS

Warranty is invalidated by faulty or poor workmanship not in accordance with written product installation instructions, product installation guidelines and applicable industry standards. CONSPRO CORP. is not responsible for normal wear and tear resulting from regular usage or for warranty claims involving product abuse or misuse. Warranty does not cover damage or defects resulting from:

1. Natural disasters, vermin or acts of God,
2. Misuse, abuse or negligence,
3. Lack of maintenance,
4. Standing or pooling water,
5. Fire, faulty construction or design, inadequate drainage or other failure of the structure,
6. Failure of the building roof substrate,
7. Defects, blisters or delamination in the materials, substrate, coating or roof systems to which the product is applied,
8. Impact or tear due to of foreign objects, a
9. Discoloration or damage that is solely cosmetic, or
10. Application of PRO-SIL® with a DFT less than 20 mils (0.51mm) less.

Any use of BULL-BOND® products for purposes other than those specifically described by the product label, published instructions and/or technical data sheet shall render this warranty null and void.

CONSPRO CORP. will not be liable for product usage recommendations by salespersons or employees that are contrary to published instructions and/or technical data sheet. The user is responsible for examining all published instructions and technical data sheets and shall determine the suitability of the product for his intended use before application and/or use. The user assumes all liabilities and risks whatsoever in connection the use and application of the product.

NON-ASSIGNABILITY

This warranty is not transferable nor assignable by contract or operation of law either directly or indirectly.

LIMITATION OF DAMAGES; MEDIATION; JURISDICTION; CHOICE OF LAW

This warranty is made in lieu of any and all other warranties, expressed or implied, including the warranties of merchantability and or fitness for use, which are hereby disclaimed. It is understood and agreed that buyer's sole remedy and therefore seller's liability whether in contract, tort, under any warranty in negligence, or otherwise, is limited to the return of the purchase price. The product warranty does not cover consequential and/or special damages or labor costs of any sort. Any and all problems, controversies, disputes or claims arising or regarding the use, warranty, recommendations, effectiveness, durability or others involving this product will be resolved only by arbitration in the Commonwealth of Puerto Rico per applicable Puerto Rico arbitration rules and proceedings in effect at the time the claim is known.

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