

Work Instructions Deckguard® – Spray Applied Membrane

Responsibility

It is the responsibility of installer to understand all requirements of this document before attempting to install the Deckguard Spray Applied Waterproofing Material system.

- Failure to perform any steps outlined in this document will result in underperformance or failure of the Deckguard product.
- Failure to perform any of the steps outlined in this document shall void any warranties, either expressed or implied, with regard to the Deckguard Spray Applied Waterproofing Material.

It is the responsibility of The D.S. Brown Company to provide written instructions with regard to the proper installation and handling of the Deckguard Spray Applied Waterproofing Material.

It is the responsibility of The D.S. Brown Company to provide technical support, training, and quality control testing as requested by the installer, contractor, or owner of the project.

- Technical support, training, and quality control testing are available for a fee.

Product Description

Deckguard Primer is shipped in sets of two (2) 15-gallon kegs. Primer coverage is approximately 150- 200 sq. ft. per gallon, depending on the surface to be primed.

- The kegs are clearly marked “Part A” and “Part B” to differentiate between the two components.
- The Part A component is the Isocyanate. Make sure that this matches the red connections on the pump.
- Deckguard primer must be pre-heated to 155°F before application, failure doing so will result in uncured product.

Deckguard Membrane is shipped in sets of two (2) 55-gallon drums with 50-gallons of material. Membrane coverage is approximately 20 sq. ft. per gallon at 0.080” thickness.

- The drums are clearly marked “Part A” and “Part B” to differentiate between the two components.

- The Part A component is the Isocyanate. Make sure that this matches the red connections on the pump.
- Deckguard Membrane must be pre-heated to 155°F before application, failure doing so will result in uncured product.

Deckguard Broadcast Aggregate is shipped in 20-pound bags or 3,000 lbs. bulk. Broadcast Aggregate coverage is approximately 2 sq. ft. per pound.

- Broadcast Aggregate is only supplied for systems that require Deckguard Tack Coat.

Deckguard Tack Coat is shipped in 50 lb. blocks with cardboard liners. Tack Coat coverage is 2.5 sq. ft. per pound.

- Tack Coat is only supplied for applications that require asphalt overlays.

Deckguard Top Coat is shipped in sets of two (2) 55-gallon drums with 50-gallons of material. Membrane coverage is approximately 40 sq. ft. per gallon at 0.040” thickness.

- The kegs are clearly marked “Part A” and “Part B” to differentiate between the two components.
- The Part A component is the Isocyanate. Make sure that this matches the red connections on the pump.
- Deckguard Top Coat must be pre-heated to 155°F before application, failure doing so will result in uncured product.

Product Safety

The Deckguard Spray-Applied Membrane System is an MDI based polyurethane/polyurea system. Please review each component’s SDS before installation to fully understand the safety concerns related to this system. Failure to do so could result in serious injury or death.

The following guidelines are recommendations consistent with the SDS literature. These recommendations are not intended to supersede or replace any existing requirements set forth by local laws or policies.

OSHA’s Respiratory Protection Standard sets forth requirements for a facility Respiratory Protection Program (29 CFR 1910.134).

Personal Protective Equipment (PPE)

- Approved respirator
 - Operators shall be properly trained in the use of a respirator

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- MDI-resistant chemical gloves (e.g., nitrile)
- MDI-resistant long-sleeve coveralls or full body suit with hood
- MDI-resistant fitted boots/booties

Workers not wearing the correct PPE should not enter the spray area.

- Care should be taken to control overspray during application. Individuals not wearing the correct PPE should not be in an area affected by overspray.

Material Storage

Material storage recommendations apply for Deckguard Primer, Deckguard Membrane, and Deckguard Top Coat.

Shelf life is up to one year in factory sealed containers.

Store unopened containers between 55°F and 95°F.

- When storing materials on a jobsite, protect the drums from direct sunlight. This may cause the product to overheat.
- If the components are stored below 55°F they must be heated to a temperature above 60°F and mixed before use. At temperatures below 55°F the materials may separate and thicken.

Opened containers should be consumed entirely as the product will react with air and moisture once the seal has been broken.

- Material stored in open containers should be tested before use at a later date.
- Open containers of material cannot be returned.

Equipment Needed

The reactive nature of the Deckguard Spray Applied Waterproofing System requires that plural component spray equipment be used to apply both the primer and membrane.

- Consult a D.S. Brown representative for specific spray equipment requirements.
- Material cannot be mixed and applied by hand.

The ratio of the Primer, Membrane, and Top Coat is 1:1 by volume. Spray equipment should be configured to mix product in this ratio only.

The spray hoses for the material must be heated. This ensures a constant cure rate. The product must be heated to 160°F when spraying.

A generator is required for operation of all standard spray equipment, please review the plural component specifications before obtaining.

Compressed air with a minimum flow rate of 180 cfm at 100 psi is required. The compressor must be fitted with a compressed air dryer and oil separator.

For applications at temperatures below 40°F, a drum heater is required for material components. The components must be heated above 60°F to ensure proper mixing and to avoid pump problems.

Test equipment required for verification of a successful installation of material components is as follows:

- Moisture Meter capable of measuring (5% or more) moisture content in concrete. (PosiTest CMM or equivalent) ASTM F-2659
- Temperature meter capable of measuring the deck surface temperature. (PosiTector PRBDPMA or equivalent) ASTM D3276-21
- Thermometer for measuring ambient air temperature. (PosiTector PRBDPMA or equivalent) ASTM D3276-21
- Humidity meter for measuring relative humidity of the air.
- (PosiTector PRBDPMA or equivalent) ASTM D3276-21
- Portable adhesion tester capable of measuring pull-off strength. (PosiTest AT or equivalent) ASTM D 4541 & ASTM D 7234
- PosiTector SPG Surface Profile Gage (PRBSPGTS, PRBSPGCS, or equivalent) ASTM D8271-21 & ASTM D4417-21
- Ultrasonic thickness gauge (PosiTector 200 & 6000 or equivalent) ASTM D6132-13

Pre-application Inspection

Visual Inspection of the bridge deck is the first task to be completed by the applicator.

- All asphalt must be removed from the bridge deck. Any residual left will cause the material to debond from substrate.
- The deck must be free of any dirt, debris, oil stains, rust, caulking, standing water, and old waterproofing. Failure of ensuring this will cause the material to debond from the substrate.
- Loose concrete, spalls, bug holes, and cracks greater than 1/8" must be repaired. The Deckguard Membrane System is not a patching material and should not be used to repair spalls or cracks in concrete.
 - New concrete (including cementitious patches) shall have a minimum of 28 days of cure.



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- ASTM C1583-13 is the recommended procedure to test tensile overlay strength.
 - The deck surface shall be blasted to a minimum of SP10 for steel structures and between coarse sandpaper and a ¼" profile for concrete surfaces. These procedures allow for the correct anchor profile. Concrete substrate is ASTM D8271-21, Steel substrate is ASTM D4417-21.
 - All joints must have an approved joint system installed prior to application.
 - All joints are to be constructed in accordance with the drawings and specification details with respect to width, level, and alignment.
 - **The applicator must fill out a field inspection checklist daily to document that all quality assurance guidelines have been met.**
 - Any issues with regard to this inspection must be noted on the checklist as resolved before proceeding to the next set of inspections or further application of the Deckguard Waterproofing Membrane System.
- Quantitative Testing – Installation of the Deckguard Membrane Waterproofing System requires that atmospheric and surface conditions be monitored throughout the installation.
- All data gathered during qualitative testing is to be recorded on the field inspection checklist.
 - Conditions detrimental to a successful installation shall be noted and must be resolved prior to application of the Deckguard Membrane Waterproofing System.
 - Ambient Air Temperature must be taken at the spray site and recorded on the field inspection checklist.
 - Ambient air and/or substrate temperatures below 50°F will cause longer cure times for the primer (up to 4 hours).
 - Relative Humidity must be taken at the spray site and recorded on the field inspection checklist.
 - Installation of material surpassing 85% Relative Humidity could result in debondment from substrate and affect curing of material.
 - The Dew Point shall be calculated using the air temperature and humidity reading and recorded on the field inspection checklist.
- Deck Temperature must be taken at the area to be sprayed and recorded on the field inspection checklist.
 - Deckguard can only be applied if the deck temperature is greater than the calculated dew point.
 - Surface moisture and moisture content of the deck must be measured and recorded on the field inspection checklist.
 - Readings should be taken randomly throughout the area to be sprayed.
 - Special care should be taken with shaded areas or areas not exposed to direct sunlight.
 - All readings must be below 5% moisture prior to installation. Any areas over 5% will cause poor bond with the primer and result in an unsuccessful installation.
 - Bond testing of substrate must be performed before application of the Deckguard Waterproofing Membrane System. This testing must be performed to ensure that the deck has been properly prepared before application of the primer. Refer to procedures ASTM C-1583, D 7234, & D 4541 for the appropriate substrate standard.
 - A minimum of three bond tests within first 1,500 sqft of sprayed primer, follow job specifications for amount of dollies to lay down, if no specification is present, we recommend 1 dolly per 1,000 sqft of primer after.
 - Check standard for appropriate adhesive before attaching dolly.
 - Using the portable adhesion tester, measure the force required to pull the dolly off the substrate.
 - Record the adhesion values on the Deckguard Field Inspection Report.
 - Adhesion values should be greater than the amount specified in the contract.
 - If spraying new Deckguard membrane over prior installed Deckguard membrane, an acetone wash is required to reactivate Deckguard membrane.
 - This only applies to D.S. Brown Deckguard membrane.
 - A minimum of a 4-inch overlap spray required when installing a continuous layer of membrane. This will allow a seamless layer ensuring the waterproofing integrity.

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Installation

Deckguard primer is applied using a two-component plural pump with heating capability.

Spray apply primer to wet the deck. There should be no puddles of primer.

Vertical surfaces may need multiple passes to get an even coating of primer.

Allow primer to dry before starting membrane application. Primer may still be slightly tacky to the touch at time of membrane application.

Any precipitation (including dew or condensation) will inactivate the primer. Any areas left unprotected must be removed and reapplied. Membrane must be applied no later than 24 hours after primer application. After 24 hours the existing primer must be removed by abrasive blasting and reapplied.

Deckguard membrane is applied using a two-component plural pump with heating capability.

Spray apply membrane in even passes, building up thickness with each pass. Deckguard membrane will bond to itself provided that the existing surface is free of contamination.

Do not apply excessive amounts of membrane in one pass. Typical application rate is 40 mils per application up to desired thickness..

- Typical thickness is 80 mils unless otherwise specified by the contract.
- Excessive thickness will cause contraction cracking as the product cools.
- Tire tracks should be removed from membrane surface with acetone wash.
- Off mix ratio spray needs removed and cleaned with an acetone wash.

Do not attempt to fill holes or cracks with membrane. These should be repaired before application as indicated in section Pre-application Inspection (page 2).

Apply membrane to vertical surfaces in multiple passes. Material must not be allowed to pool at the base of the vertical surface.

Deckguard Top Coat is applied using a two-component plural pump with heating capability.

Spray apply Top Coat in even passes, building up thickness with each pass. Deckguard Top Coat will bond to itself provided that the existing surface is free of contamination.

Do not apply excessive amounts of Top Coat in one pass. Typical application rate is 40 mils per application up to desired thickness.

- Typical thickness is 40 mils unless otherwise specified by the contract.
- Excessive thickness will cause contraction cracking as the product cools.

Broadcast aggregate over Top Coat achieving a 70% surface coverage.

- Ensure aggregate is free of moisture. Wet aggregate could cause the Top Coat to debond with membrane layer or aggregate may not adhere to Top Coat.
- Exposure to traffic will cause Deckguard Aggregate to debond from Top Coat at a slow rate. It is not recommended to exceed more than 7 days of exposure for light traffic.

Apply Deckguard Tack Coat over Broadcast aggregate achieving 90% coverage.

- Squeegee Tack Coat across aggregate to prevent excessive build up.
- It is not recommended to drive on Tack Coat until it has cooled to an ambient temperature.

Follow manufacturers shutdown procedures for plural machines.

Properly store extra material within these specifications to ensure reusage.