NEOGARD®

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Troubleshooting Guide

Causes, Repair & Prevention

March 2020

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Introduction

Dear Neogard Customer,

This troubleshooting guide covers the causes, repair, and prevention of problems with Neogard waterproofing and deck coating, flooring, and roofing systems. It is intended for personnel who are involved in selling, estimating, administration and application.

We will make changes and additions to this guide as technology evolves. For specific application questions or technical assistance, contact the Neogard Technical Service Department by phone at (214) 353-1600, or use the contact form at www.neogard.com/Contact. Additional technical resources are also available at www.neogard.com.

Thank you for your help in making this guide possible.

Your Neogard Team

Disclaimer

This document is intended for professional use and provides generic advice in respect of the subject matter hereof only. It is not intended to be used as a comprehensive guide. The buyer/applicator should always read the relevant Product Data Sheets (“PDS”), Safety Data Sheets and Guide Specification relating to the applicable products/system. If in doubt, please contact your local Neogard representative for further advice. To the extent relevant, the disclaimer set forth in the relevant PDS or Guide Specification applies to this document.

Waterproofing and Deck Coating

Craters Due To Moisture Contamination

Description

Craters due to moisture will typically occur in clusters.

Cause

Moisture from relative humidity or moisture contaminated aggregate will react with the coating material and cause a bubbling effect as shown above. This is caused by a chemical reaction between moisture and the urethane coating material.

Repair

1. Grind affected areas smooth.
2. Clean surface and solvent wipe if necessary.
3. Apply additional coating to match adjacent areas.

Prevention

- Ensure that the deck is completely dry before coating. Moisture may not be readily apparent, particularly if aggregate has been introduced into the system. Conduct a moisture test before coating application to ensure that there is no contamination.
- Keep aggregate dry as it can be a source of moisture contamination.
- Ambient surface temperature should be more than 5°F above dew point. See Dew Point of Moist Air in the Support Information section of this manual for ambient temperature and relative humidity guidelines.

Pinholes

Description

Pinholes appear as tiny blisters or bubbles. When these blisters pop they usually leave a round crater and the pinhole should be easily seen through the film.

Causes

- Porous Concrete: Concrete releases air and moisture vapor that expands as temperatures rise. Also, aggressive shot-blasting or scarifying can open concrete pores and bug holes.
- Excessive Aggregate: Air entrapped in wear coat when aggregate is applied too heavily, leaving air pockets.
- Excessive Additives: When over accelerated, coating rapidly forms a film, trapping air from the substrate, preventing escape during the curing process. Adding solvents can result in surface pinhole blisters if the solvent is not allowed to escape prior to gel.

Repair

1. Break blisters with a stiff bristle broom or squeegee before additional coating is applied.
2. A light abrasion may be required to maintain good aesthetic appeal.
3. Large areas of pinholes may need to be ground with a wire cup grinder.
4. Clean surface and solvent wipe if necessary.
5. Apply additional coating.

Prevention

- Porous Concrete:
  - Begin application as temperatures are dropping and continuing to drop. Rising temperatures result in expansion of the moisture and air in the concrete. Falling temperatures cause the air and moisture to contract within the concrete.
  - Apply the specified system in thinner coats, which will require more coats to build the system. Thinner application may displace the air in the pinholes.
  - Thin the material for the first base coat. Use only commercial grade solvents and never thin products more than 10% by volume. Excessive thinning may affect physical properties of the coating.
- Excessive Aggregate: Apply wear coat at specified rates, taking care to prevent aggregate from leaving entrapped air pockets.
- Excessive additives: Avoid using accelerators during hot temperatures. See Weather Impact on Coating Materials in the Support Information section of this guide.

Blistering Due To Water Contamination

Description

Blisters look like bubbles in the coating surface. The blisters will have a trace of water or moisture trapped inside them. Moisture between the aggregated wear coat and topcoat leaves an orange peel texture on the backside of the blister, mirroring the sand coat texture.

Cause

Water from rain, dew or other sources, mixed or rolled into wet, uncured coating. The urethane coating reacts with the water and attempts to cure on the surface, forming blisters and stress wrinkled areas.

Repair

1. Cut out and remove all blistered and wrinkled areas.
2. Grind affected areas to sound coating.
3. Allow to dry thoroughly.
4. Re-apply coating as needed to bring system to specified thickness.

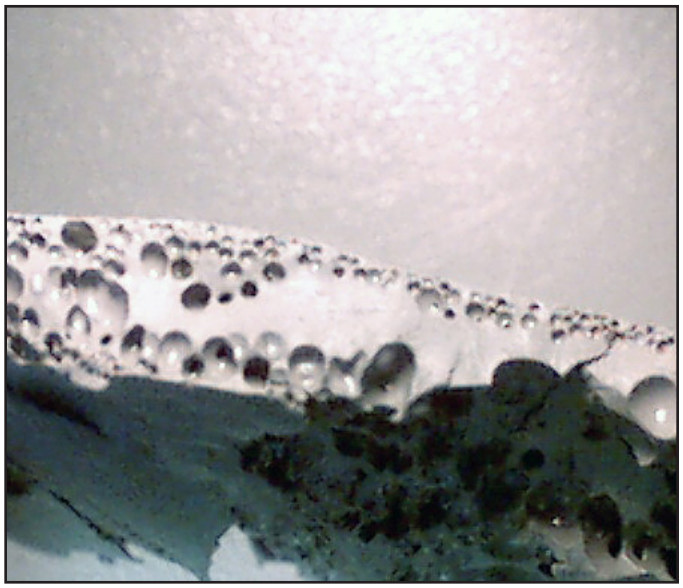
Prevention

- Do not apply coating if rain is imminent.
- Ensure that sprinkler/lawn systems remain off for the duration of the cure.
- Ambient temperature should be more than 5° above dew point. See Dew Point of Moist Air in the Support Information section of this guide for ambient temperature and relative humidity guidelines.
- Ensure that the deck is completely dry before coating. Moisture may not be readily apparent, particularly if aggregate has been introduced into the system. Conduct a moisture test before application to ensure that there is no water contamination.

Blistering Due To Thick Coating

Description

Blisters look like small to large unbroken bubbles in the coating surface and can appear round or oblong. Depending on the state of cure, they can feel spongy or fluid beneath the surface.



Cause

Coating was applied at a rate greater than application instructions.

Repair

1. Completely remove affected areas down to cured coating or substrate.
2. Reapply coating system per Neogard specifications and recommendations.

Prevention

- During installation of coating, frequently check the wet film thickness by use of recommended mil gauges.
- Laying out the job prior to coating by gridding out the area will help to maintain proper and uniform coating thicknesses.
- During application, backroll to eliminate low spot areas where self-leveling coating may pool.

Wrinkling

Description

Coating is wrinkled in appearance. Multiple lines of parallel wrinkling may occur.

Causes

- Previous Coat is Uncured or Off-Ratio: Material applied over uncured or off-ratio coating, causing stress on topcoat.
- Coating Too Thick: Coating applied at a thickness that exceeds application instructions.

Repair

1. Remove coating in affected areas to cured coating or sound substrate.
2. Apply coating at rates specified by Neogard.

Prevention

- Previous Coat is Uncured: Ensure that coatings are completely cured before applying additional coats.
- Previous Coat is Off-Ratio: Mix all materials thoroughly, following mix ratios printed on product labels or the Product Data Sheet. See Product Mixing Instructions in the Support Information section of this guide.
- Coating Too Thick: Apply coatings at recommended coverage rates.

Blistering Due to Slow Cure or Not Curing

Description

Coating is soft and may transfer when touched. Coating may also delaminate.

Typical blister

Area underneath removed blister

Off-ratio coating

Cause

Product is not mixed properly and is off-ratio. Generally, the coating will feel tacky, but in worst-case scenarios the coating will remain in a liquid state.

Repair

1. Cut out blister to sound, clean substrate.
2. Solvent wipe to remove all residue.
3. Grind down edges for a smooth transition.
4. Ensure all edges are totally bonded leaving no fish mouths or air gaps.
5. Re-apply system.

Prevention

- Allow previous coats sufficient time to cure prior to applying additional coats.
- Mix all materials thoroughly, following mix ratios printed on product labels or the Product Data Sheet. See Product Mixing Instructions in the Support Information section of this guide.

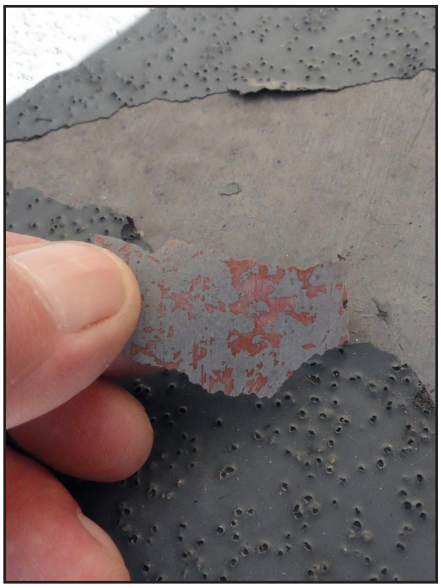
Peeling/Delamination

Description

Coating may peel off in places and show signs of concrete laitance or other contaminants on the backside.

Delamination due to moisture

Delamination due to incompatible materials



Delamination due to improper surface preparation

Causes

- Improper Surface Profile: Surface was not shot-blasted or abraded prior to applying membrane, or the base coat was applied over epoxy primer after the 24-hour window.
- Contamination from Moisture: There was dew or other moisture on the surface that was coated.
- Contamination from Dust, Dirt, Etc.: Coating over contaminated surfaces will lead to coating failures such as loss of bond.
- Incompatible Materials: Materials that are incompatible with the coating will cause many issues including delamination.
- Thin Topcoat Application: A final topcoat applied too thin may delaminate and peel from the coating system.

Repair

1. Remove all loosely bonded material.
2. If substrate is exposed, abrasion may be necessary.
3. Clean repair area.
4. Re-apply material as specified and per Neogard recommendations.

Prevention

- Improper Surface Profile: Substrate should be shot-blasted or abraded and cleaned prior to application of primer. Shot-blast surface ICRI CSP3 to CSP4 to remove contamination or laitance, and for optimal bonding. Base coat must be applied within 24 hours of primer application. If base coat cannot be applied within 24 hours, clean and re-apply primer.
- Contamination: Ensure deck is clean and dry prior to application of material.
- Incompatible Materials: Perform field adhesion test prior to application of the coating when installing coating over existing coating system. See the Field Adhesion Testing section of this guide.
- Apply coating at specified rates and per Neogard recommendations.

Cracks

Description

Cracks in concrete substrate may telegraph through the coating and become clearly visible. Over time, these cracks may increase in number as well as in size.

Causes

- Settling: Substrate cracks are caused by shifting and settling of the structure after original construction.
- Expansion/Contraction: Concrete structures continually experience expansion and contraction driven by temperature, moisture and load. All cracks should receive detail treatment prior to application of the base coat.

Repair

1. Route cracks.
2. Fill with Neogard 70991 polyurethane sealant and strike flush. Allow sealant to fully cure.
3. Clean repair area with Neogard 8500 BioDegradable Cleaner or solvent wipe. Extend cleaning 6”–8” beyond the affected area.
4. Prime any exposed concrete.
5. Install a detail coat of base coat material extended to a minimum of 2” on either side of the crack to yield a thickness of 30 dry mils. Allow to cure and then apply required system.
    - Optional: Apply base coat material extended to a minimum of 3” on either side of the crack at 30 dry mils and embed reinforcing fabric into wet coating. Center fabric over urethane sealant and allow to fully cure. Apply additional base coat material as necessary to fully encapsulate reinforcing fabric. Allow detail coats to cure, then apply required system.

Prevention

- Prior to application of the coating system, perform proper surface preparation including crack detail:
- Hairline cracks below 1/16” should receive a 30 mil detail coat utilizing base coat material, a minimum of 2” on either side of crack.
- Large cracks above 1/16” should be routed and filled with Neogard 70991 polyurethane sealant. After sealant is fully cured, apply a 30 mil detail coat utilizing base coat material extended to a minimum of 2” on either side of the crack. Reinforcing fabric is optional.

Water Damage To Uncured Coating

Description

Surface has areas of sponge-like, cratered patterns where water has come in contact with uncured coating.

Cause

Heavy rain, sprinklers or other water source caused damage to uncured coating.

Repair

1. Grind all affected areas to eliminate ridges in the cratered areas.
2. Clean and allow to completely dry.
3. Re-apply coating as specified and according to Neogard recommendations.
4. In severe situations, the coating may have to be totally removed prior to re-coating.

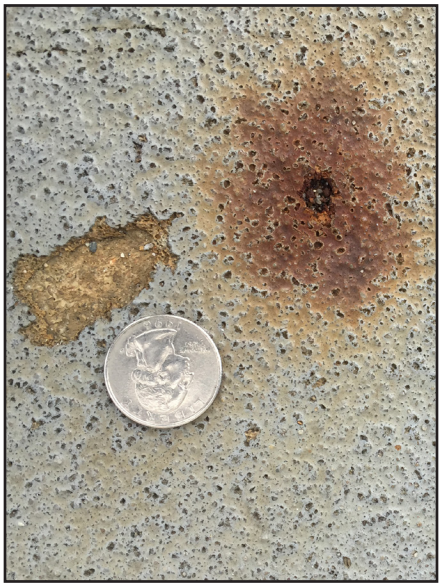
Prevention

- Do not apply coatings if rain is imminent.
- Ensure sprinkler systems are disabled for duration of the project.

Rust/Metal Contamination

Description

There are rusty, reddish-brown stains in the coating. The presence of rust can be purely aesthetic, or it may indicate a condition which affects the integrity of the coating system.



Causes

- Shotblast Beads: Rust stains develop when shot-blast beads utilized during surface preparation are not properly removed. Rust stains will bleed through the entire system if metal is not removed prior to applying the coating system.
- Metal in Aggregate: Rust may also develop from metal fines contained in the aggregate.
- Rebar or Mesh: Rust from rebar or mesh too close to the surface can also appear.

Repair

Surface Contamination:

If the contamination source is from the surface, power washing along with the use of a rust neutralizer may remove stained area.

Substrate Contamination:

1. If the contamination source is located in the substrate, remove the coating down to the substrate and abrade the surface to remove all rust.
2. Apply Ureprime HS2 or HS4 at a rate of 300 sf/gal to properly prepared area and allow to cure.
3. Apply 70714/70715 Series epoxy at a rate of 100 sf/gal (16 WFT/16 DFT).
4. Re-apply coating per specifications and Neogard recommendations in the Waterproofing Application Manual.

Prevention

- Shotblast Beads: Remove all iron and metal residue from the substrate, including cracks and joints.
- Metal in Aggregate: Use Neogard or Neogard-approved aggregates.
- Rebar or Mesh: After the deck is cleaned and shot-blasting completed, inspect for rebar and/or mesh near the surface. If rebar or mesh is near the surface, it may be necessary for the owner to consult with a structural engineer.

Color Differential

Description

Finished waterproofing surface shows different shades of color. While considered less than aesthetically appealing, this condition does not affect the integrity of the waterproofing system.

Causes

- Different Batches of Topcoat: There may be slight shade variation from batch to batch of material.
- Deck Coated at Different Times: Older coating material has weathered and appears different than newer coating material.
- Improper Mixing: Product not mixed sufficiently to disperse pigment. See Product Mixing Instructions in this guide.

Repair

1. Apply an additional wear coat and topcoat.
2. Allow sufficient time for weathering.

Prevention

- Different Batches of Topcoat: Always purchase or set aside enough topcoat from the same production batch to coat the entire surface area. Use odd batches elsewhere such as in the wear coat if applicable. If there is not enough topcoat of a single batch to complete the project, “boxing” batches is an alternative. Boxing is the process of combining all the coating you will be using as the topcoat into one large container. This is especially important when coating a large surface area or if there is insufficient coating from a single batch, where a color variation from one batch to another is likely.
- Deck Coated at Different Times: When deck coating is completed in phases, a transition such as a wide joint will help to minimize appearance differential from weathering.
- Improper Mixing: Always mix material sufficiently to properly disperse the pigment. See Product Mixing Instructions in the Support Information section of this guide.

Fiber Reinforced Concrete (FRC)

Description

Fibers have been added to the concrete mix to control shrinkage cracks and to improve other physical properties. These fibers will protrude and breach the coating system and may cause future leaks.

Cause

Fibers added to the concrete mix will protrude through the concrete surface.

Repair

1. Mechanically prepare surface by shot-blasting to industry-standard texture (ICRI CSP3–CSP4) without causing defects to substrate.
2. Remove fibers by burning with a propane torch.
3. Remove any remaining residue prior to coating application.

Prevention

It is not recommended to use fibers in the concrete mix when a coating is to be applied. If fibers are present, remove them before applying coating.

Excessive Wear

Description

Coating is worn, exposing primer and bare concrete.



Causes

- Inappropriate Application: Excess aggregate in wear coat and insufficient topcoat material led to premature wear.
- Wrong System Specified: Applied system not designed for heavy duty areas such as drive lanes, turns, ticket splitters, etc.
- Moisture Contamination: Premature wear due to moisture contamination during application.
- Improper Mixing: Failure to mix components properly prior to installation, scraping unmixed material from walls of buckets, insufficient mixing time for proper dispersion, or a contaminated mixing paddle, resulting in off-ratio components and poor physical properties.

Repair

1. Remove all loosely bonded material. In areas where primer is exposed, grind to expose substrate.
2. Clean repair area with Neogard 8500 BioDegradable Cleaner and solvent wipe.
3. Reapply coating as specified and according to Neogard recommendations.

Prevention

- Inappropriate Application: Apply system as recommended by Neogard; include heavy duty application in designated areas.
- Wrong System Specified: Ensure that the appropriate system is specified for existing project conditions and use.
- Moisture Contamination: Ensure that the deck is completely dry prior to coating. Moisture may not be readily apparent, particularly if aggregate has been introduced into the system. Monitor the ambient surface temperature for the entire duration of the application process. See Dew Point Chart in the Support Information section of this guide for ambient temperature and relative humidity guidelines.
- Improper Mixing: Mix all materials thoroughly following recommended mix ratios printed on product labels or the Product Data Sheet. All mixing equipment should be clean to prevent contamination. See Product Mixing Instructions in the Support Information section of this guide.

Delamination Caused By Sealant

Description

Coating delamination has occurred due to off-ratio, uncured sealant.

Cause

Two-component sealant was improperly mixed or was contaminated.

Repair

1. Completely remove all sealant and residue from joint or affected area.
2. Solvent wipe with Xylene.
3. Re-apply properly mixed, compatible, urethane sealant to joint or affected area.
4. Solvent wipe cured sealant surface prior to application of coating.

Prevention

When mixing sealant, scrape sides of bucket and thoroughly mix with the catalyst and color pack. Carefully follow sealant manufacturer’s mixing instructions.

Blisters Caused By Trapped Moisture

Description

The coating system fails due to delamination caused by moisture migration in the concrete substrate.

Causes

Trapped excess moisture in or below the concrete substrate.

Repair

1. Identify the source of the moisture.
2. Remove coating in affected areas down to clean substrate.
3. Re-apply coating as specified and according to Neogard recommendations.

Prevention

- Moisture Contamination: Ensure that the deck is completely dry prior to coating. Moisture may not be readily apparent, particularly if aggregate has been introduced into the system. Monitor the ambient surface temperature for the entire duration of the application process. See Dew Point Chart in the Support Information section of this manual for ambient temperature and relative humidity guidelines.
- Moisture Test: Ensure that the deck is completely dry before coating. Moisture may not be readily apparent, particularly if aggregate has been introduced into the system. Conduct a moisture test before application to ensure that there is no water contamination.

Flooring

Product Settling

Description

Solid material settles in the bottom of the bucket. This typically occurs in the pigmented/color side of a product.

Cause

Some products have a tendency to settle over time.

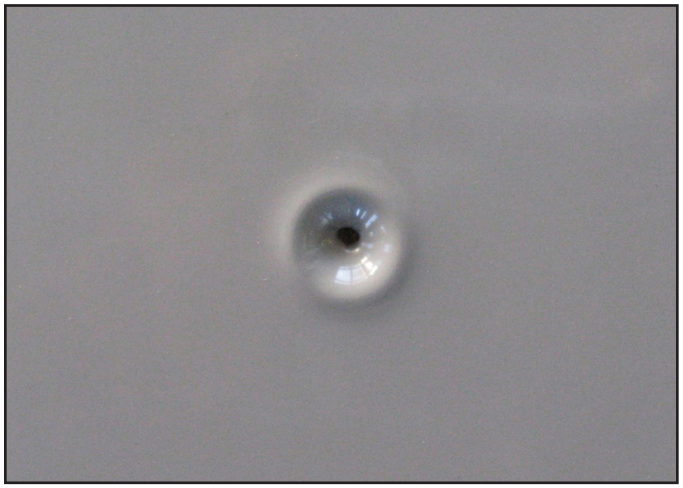
Prevention

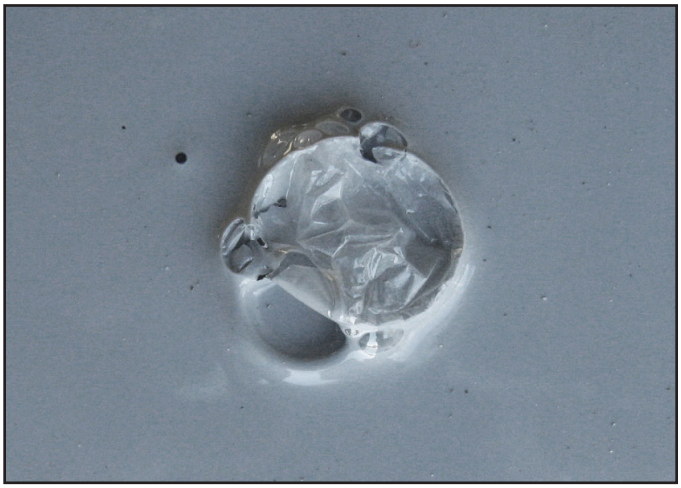
- If there are signs of pigment settling, special care needs to be taken during initial mixing.
- Make sure mixing paddle reaches bottom of bucket and mix the settled material well to ensure pigments are dispersed back into product.
- Always pre-mix pigmented side before adding hardener.
- If settlement is pasty or dry and does not mix back into material, do not use.

Pinholes/Air Bubbles

Description

Pinholes appear as tiny blisters or bubbles. When these blisters pop they usually leave a round crater and the pinhole should be easily seen through the film.





Causes

- Outgassing: Air escapes from porous concrete and becomes trapped in the coating.
- Air Movement: Excessive air movement from vents, doors, or other sources may cause flash drying and prevent necessary air release from coating.
- Temperature/Humidity: High temperatures or humidity can cause rapid drying, entrapping air in coating.
- Direct Sunlight: Coating exposed to direct sunlight can tack off before releasing air, forming bubbles.
- Improper Mixing: Mixing at high speed and improper mixing procedures may result in entrapped air.
- Roller Covers: Too short or too long of a nap roller can introduce air into the coating.
- Surface Prep: Aggressive shot-blasting or sandblasting will open pores in the concrete, causing air to become trapped when coating is applied.

Repair

1. Sand affected areas to a smooth, flat finish with 60 grit sandpaper.
2. Fill large craters with 100% solids epoxy material.
3. Vacuum to remove dust and debris.
4. Re-apply coating at the rate of 250 sf/gal.

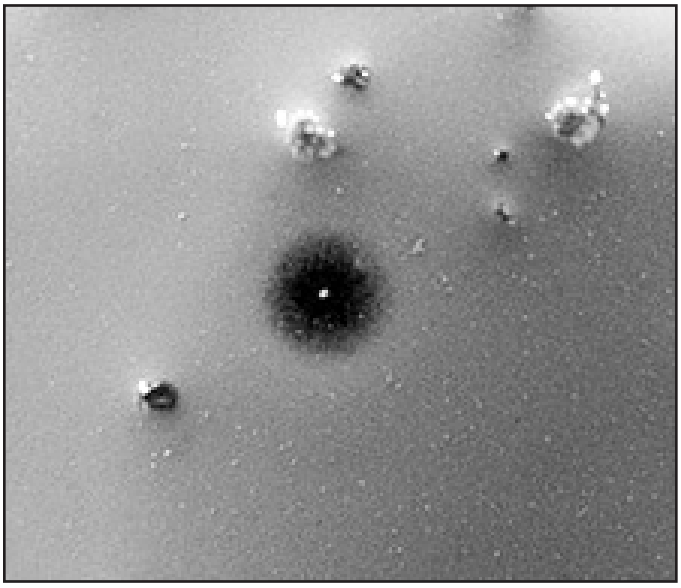
Prevention

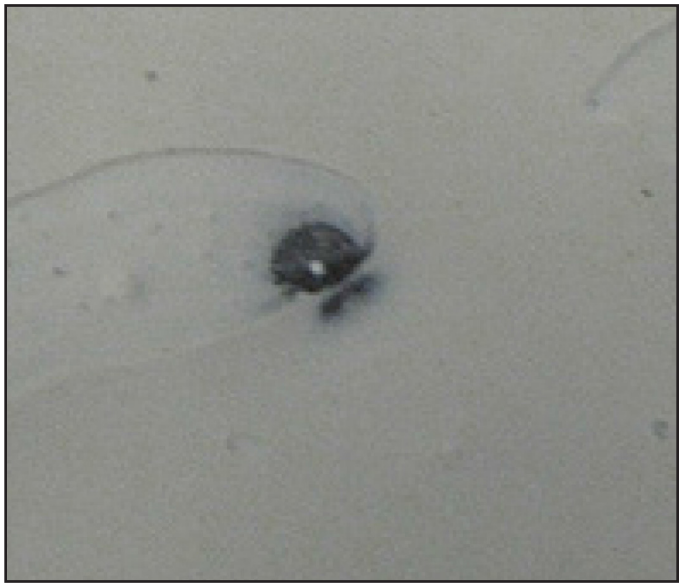
- Outgassing: For very porous concrete, pre-prime with 7779/7781, or use 70714/70715 thinned with 7055 Odorless Reducer at 3%–5%. Spike rolling will help eliminate blisters when they begin to appear but may not remove them entirely.
- Air Movement: Avoid generating fast air movement across the coating. When providing ventilation, always exhaust air rather than blowing with fans.
- Temperature/Humidity: Wait to apply material until temperature and humidity are within the ranges specified in the Product Data Sheets.
- Direct Sunlight: Prevent direct sunlight exposure during initial cure.
- Improper Mixing: Use slow speed mixing equipment with a paddle-type blade. If air is introduced into the material, let stand until air is visibly released.
- Roller Covers: Use the appropriate length nap roller of 1/4”–3/16” and apply without vigorous rolling. De-air with a spike roller if necessary.
- Surface Prep: Avoid aggressive shot-blasting. Do not sandblast.

Fish Eyes

Description

Fish eyes are round indentations or separation in the coating finish. Upon closer examination, they look like a crater with a rim around the perimeter of the defect along with a very small dot in the center.





Causes

Silicone Contaminants: Certain manufacturing processes such as welding or spraying can deposit silicones on the floor causing fish eyes to appear.

Oil/Grease Contaminants: Oil or grease contaminants can cause the coating to function improperly and fish eyes to appear.

Repair

Silicone Contaminants:

1. For minor fish eyes, abrade with #60 grit sandpaper.
2. For widespread fish eyes, completely remove coating.
3. Solvent wipe to remove contaminants.
4. Recoat the area.

Oil/Grease Contaminants:

1. Remove the coating by grinding, stripping or other suitable methods.
2. Clean the substrate, removing all contaminants.
3. Recoat the area.

Prevention

- Silicone Contaminants: Become familiar with certain types of operations and test areas prior to application. Properly prepare the substrate before coating.
- Oil/Grease Contaminants: Degrease surface properly. After degreasing, surface may need to be scarified. If all contaminants cannot be removed, contact Neogard Technical Services department.

Peeling/Delamination from Substrate

Description

Coating is peeling or de-bonding from the substrate.

Causes

- Inadequate Cleaning: Coating will not adhere to oil, grease or other contaminants.
- No Primer Used: Without primer, peeling/delamination may occur.
- Moisture Vapor Transmission: Water vapor penetrating through the substrate can cause peeling/delamination. After removing delaminated areas, moisture may be visible or the concrete may be dark in appearance.

Repair

Inadequate Cleaning:

1. The coating must be removed by stripping, shot-blasting or other suitable means.
2. Re-apply the coating after proper surface preparation.

No Primer Used:

1. Remove any coating that is not tightly bonded by stripping, shot-blasting, or other suitable means.
2. Prime and recoat after proper surface preparation.

Moisture Vapor Transmission:

1. Remove any coating that is not tightly bonded by stripping, shot-blasting, or other suitable means.
2. Consult Neogard Technical Services if this condition exists.

Prevention

- Inadequate Cleaning: Properly clean the substrate and provide a suitable profile for adhesion by stripping, shot-blasting, or other suitable means.
- No Primer Used: Use a suitable primer prior to coating the substrate after proper surface preparation.
- Moisture Vapor Transmission:
  - Substrates in contact with ground must have a properly installed, effective vapor barrier to help prevent potential problems resulting from hydrostatic, capillary or moisture vapor pressure.
  - Always perform a calcium chloride test to ASTM standards prior to installation. Test results should yield no more than 3 pounds of moisture per 1,000 square feet per 24 hours.
  - When calcium chloride test results are higher than 3 pounds per 1,000 square feet per 24 hours, consult Neogard Technical Services.

Peeling/Delamination Between Coats

Description

Coating is peeling or de-bonding between layers of coating.

Causes

- Beyond Recoat Window: Coating was not applied within 24 hours of previous coat.
- Surface Contamination: Surface was contaminated by water, humidity, oil, grease, or dust.
- Improper Mixing: Coating was not mixed at proper mix ratio, or not mixed for a minimum of 3 minutes.

Repair

Beyond Recoat Window:

1. Remove all loose, peeling, or un-bonded material.
2. Sand surface using a circular floor sander with #60 grit sandpaper.
3. Vacuum surface to remove any dust or debris left by sanding.
4. Solvent wipe the surface using 08080 Hempel's Thinner or Neogard 7055 Odorless Reducer.
5. Reapply coating as specified and according to Neogard recommendations.

Surface Contamination:

1. Clean surface of any contaminants and dry prior to coating. Vacuum or mop any water or dust. Remove oil or grease using industrial degreaser or Neogard 8500 BioDegradable Cleaner.
2. Surface must be completely dry before applying next coat. If surface has gone beyond the 24 hour recoat window, it will need to be sanded using a circular floor sander and #60 grit sandpaper.
3. Vacuum surface to remove any dust or debris left over from sanding.
4. Solvent wipe the surface using 08080 Hempel's Thinner or Neogard 7055 Odorless Reducer.
5. Reapply coating as specified and according to Neogard recommendations.

Improper Mixing:

1. Remove any loose, peeling, or uncured coating.
2. Remove all uncured material by solvent wiping with 20653 Xylene or 7055 Odorless Reducer.
3. Sand surface using a circular floor sander and #60 grit sandpaper.
4. Vacuum surface to remove any dust or debris resulting from sanding.
5. Solvent wipe the surface using 08080 Hempel's Thinner or Neogard 7055 Odorless Reducer.
6. Reapply coating as specified and according to Neogard recommendations.

Prevention

- Beyond Recoat Window: Each coat must be applied within 24 hours of the previous coat.
- Surface Contamination: Check substrate carefully before applying coating. Remove any existing contaminants.
- Improper Mixing: Follow mixing instructions printed on Neogard container labels, Product Data Sheets, Guide Specifications, or in the Neogard Flooring Application Manual.

Milky/Cloudy Coating

Description

There is a milky or cloudy appearance in wet or cured coating material.

Causes

- Moisture: Moisture in the concrete or high humidity levels can cause moisture to be present on the surface when the material is applied, or before it is fully cured. This can result in a milky appearance or greasy film. This condition is sometimes referred to as “blush” and is more prevalent with certain epoxies.
- Thick Application: A milky or cloudy appearance may result from the coating being applied too thick. In this case, the milky appearance will be more noticeable if the coating is clear.

Repair

Moisture:

1. Remove affected material by sanding with #60 grit sandpaper.
2. Apply additional coats when humidity is at acceptable levels.
3. If a “greasy” film appears, solvent wipe using 08080 Hempel’s Thinner or Neogard 7055 Odorless Reducer.

Thick Application:

1. Remove affected material by sanding with #60 grit sandpaper.
2. If a “greasy” film appears, solvent wipe using 08080 Hempel’s Thinner or Neogard 7055 Odorless Reducer.

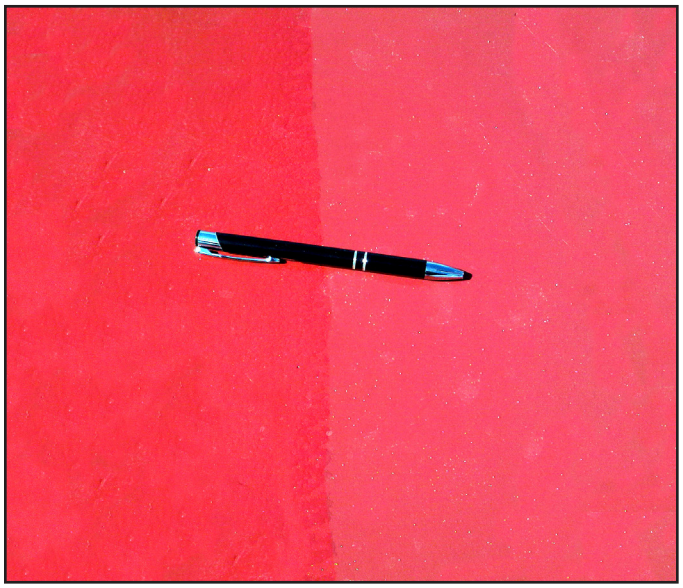
Prevention

- Moisture: Test the concrete for moisture per ASTM standards prior to application. Apply material when humidity levels are low.
- Thick Application: Apply material at the correct thickness/coverage rates according to Neogard Guide Specifications, or the Neogard Flooring Application Manual.

Color Differential

Description

Coated surface has different shades of color.



Causes

- Retouching After 15 Minutes: Color float occurs when a pigmented material has been applied and it is retouched after it has been sitting for 15 minutes or longer. Different shades in color may appear.
- Different Batch Numbers: Color can vary from batch to batch. Using different batch numbers at a job site can also cause differences in color appearance.

Repair

1. Backroll entire area with an 18” roller going from side to side.
2. Recoat the entire area with material from the same production batch.
3. If batch numbers are different, box the pigmented side first before adding hardener.

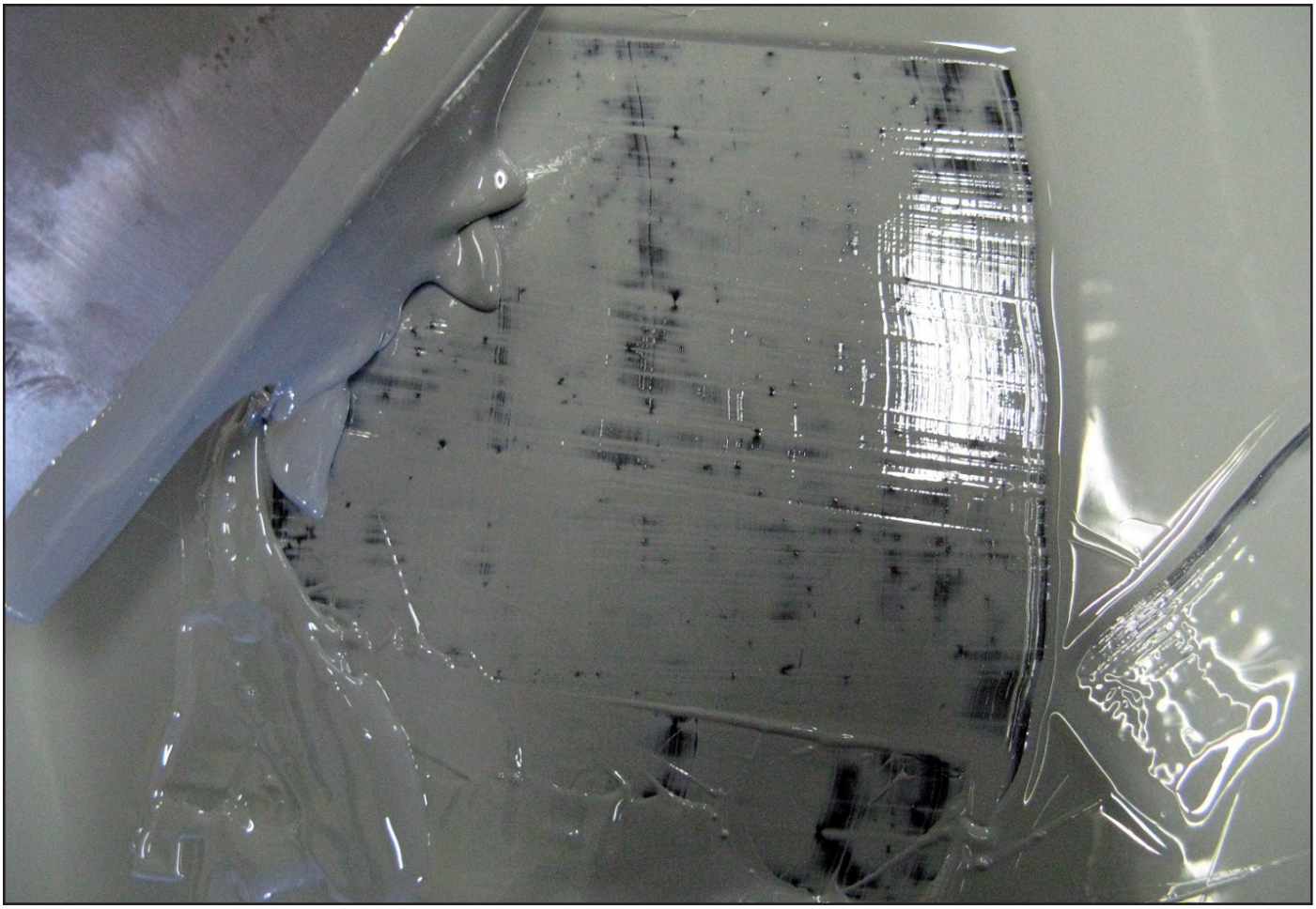
Prevention

- Retouching After 15 Minutes: If material needs to be retouched for any reason, it should be done within 10 minutes of application.
- Different Batch Numbers: When applying the topcoat, make sure you have enough material from the same production batch. If not, you will need to box the topcoat material. Boxing is the process of combining all the coating you will be using as the final coat into one container. This is especially important when coating a large surface area or if there is insufficient coating from a single production batch, where a color variation from one batch to another is likely. You will need to box the pigmented side before adding hardener.

Slow Cure/Not Curing

Description

The material does not fully cure or is still soft after 24 hours.



Causes

- Improper Mix Ratio
- Improper Mixing
- Cold Materials
- Cold Ambient Temperatures
- Cold Surface Temperatures

Repair

1. Fully remove the uncured coating down to the clean substrate by solvent wiping, scraping, grinding or shot-blasting.
2. Reapply coating as specified and according to Neogard recommendations.

Prevention

- Improper Mix Ratio: Always read and follow the mix ratios printed on material container labels or Product Data Sheets. Always use some type of measuring device. Examples include plastic buckets printed with pre-measured increments, or gallon or quart cans.
- Improper Mixing: Always pre-mix the pigmented (color) base before adding the curing agent. When both components have been properly measured and combined, mix for 3 minutes using a Jiffy Mixer paddle. Never use drywall or two-part caulking paddles. Do not turn buckets upside down and let drain on floor; this risks unmixed material from the sides of the bucket contaminating the floor.

- Cold Materials: Epoxies and urethanes will cure slowly when cold, and once cured their physical properties will be affected. Cold materials are more difficult to mix, roll out, and level. Before applying materials in cold temperatures, they should be stored in a heated environment or heated storage container at the ideal temperature listed on the Product Data Sheet. The longer the materials can be stored in a heated environment, the better they will perform.
- Cold Ambient Temperatures: This condition will also slow the curing of epoxies and urethanes. It will also make them more difficult to roll out and level. It can cause bubbling/blister issues because the viscosity of the epoxy has increased due to the colder temperatures, preventing trapped vapor in the substrate from escaping. Before applying materials, the temperature in the application area should be at normal service temperature for a minimum of 48 hours. If necessary, use portable heaters to increase the ambient temperature.
- Cold Surface Temperatures: Concrete surfaces that are 50°F/10°C or lower will drastically slow normal curing of epoxies and urethanes, and can slow the cure as much as 6 hours or more. It can also affect the cured physical properties, making some epoxies flexible. Cold substrate temperatures can prevent epoxies from “wetting out” or penetrating into the concrete surface, causing poor adhesion. Before applying materials, service temperatures should be at normal operating conditions—a minimum of 60°F/15°C—for a minimum of 48 hours. If necessary, use portable heaters to increase the surface temperature.

Staining

Description

There are dark or discolored spots in the coating system.

Causes

- Chemical Exposure or Spills: Floor has been exposed to chemicals.
- Tire Marks: Floor has been exposed to vehicular traffic.

Repair

1. Solvent wipe and/or sand stained areas to remove the stain.
2. Apply additional coating.

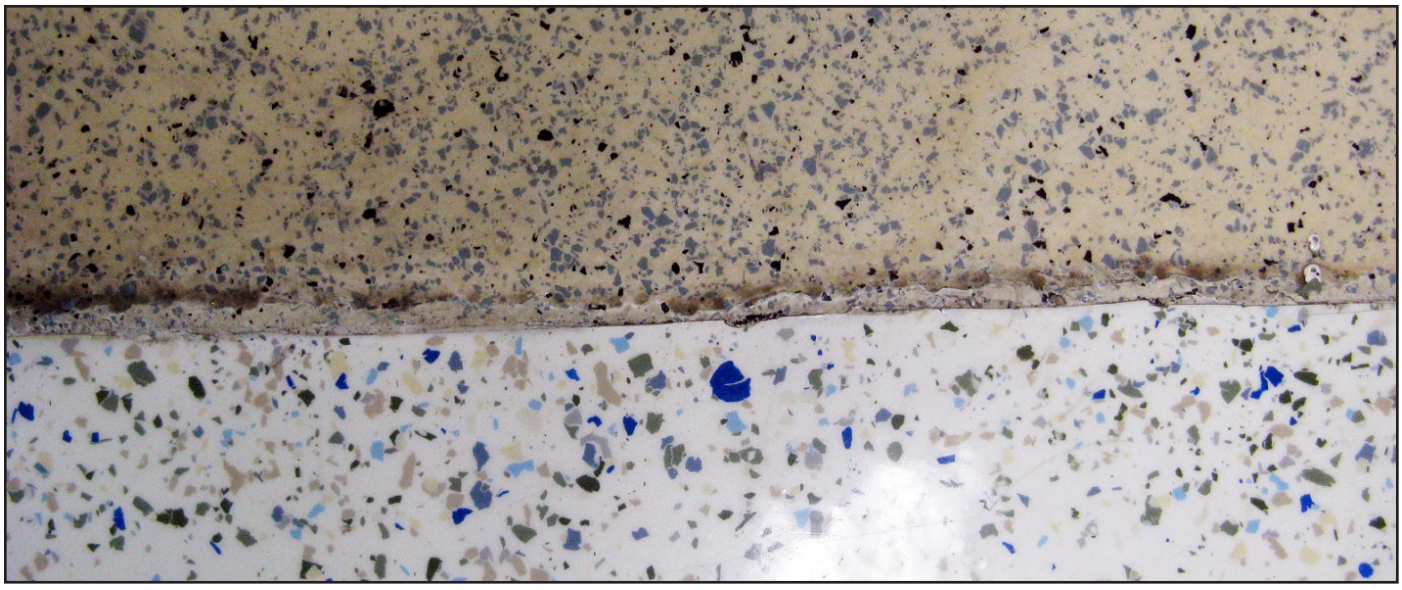
Prevention

- Chemical Exposure or Spills: In general, epoxies and urethanes do not reach full chemical cure for 7 days. Allow the completed system to fully cure for a minimum of 24–48 hours for foot traffic, forklift, or heavy loads. Before the floor is subject to chemical exposure/spills, allow it to cure for a minimum of 7 days. Spills should be cleaned immediately and not allowed to remain on the surface for any length of time.
- Tire Marks: Let final topcoat cure for a minimum of 7 days. To help avoid tire marks, place a rubber mat or carpet in areas exposed to tire traffic.

Yellowing

Description

Topcoat has developed a yellow hue. This problem will affect epoxies regardless if the epoxy is clear or not.



Cause

Epoxy has been exposed to partial or direct sunlight.

Repair

Removal for All Floor Types:

1. Remove any dirt, grease, oil or any other contaminants by pressure washing. Heavy oil or grease will need to be cleaned by using Neogard 8500 BioDegradable Cleaner.
2. Once floor is dry, sand entire area using #60 grit sandpaper with a circular floor sanding machine.
3. Clean floor to remove dust/debris from sanding.

After Removal:

Flake Systems:

1. Re-apply flake system using a 90% or total coverage of flakes.
2. Topcoat with 70805/7962, 70817/70818, or 70869/70819.

Smooth Pigmented (Solid Color) Epoxy Floors:

1. Apply one coat of pigmented epoxy, a minimum of 12 mils DFT, and let cure.
2. Apply 1 or 2 coats of Neogard pigmented 70805/7952 urethane topcoat.

Textured Systems:

1. Re-apply one broadcast application.
2. Apply both seal coats using 100% solids pigmented epoxy.
3. Apply one final coat of Neogard pigmented 70805/7952 urethane topcoat.

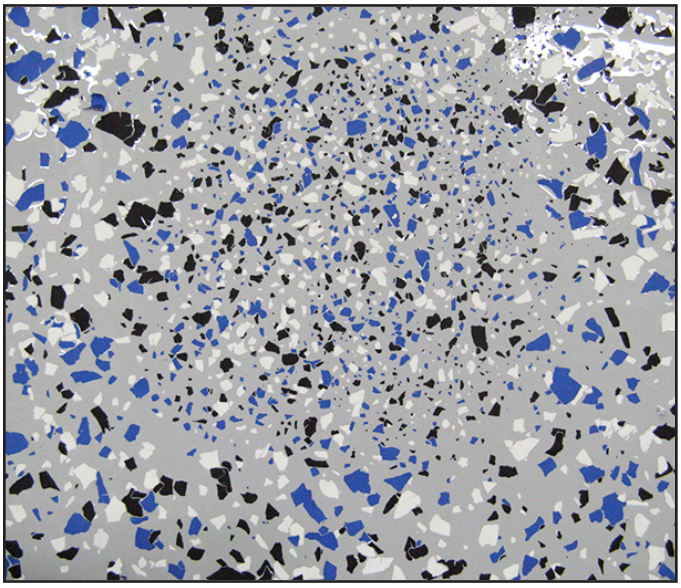
Prevention

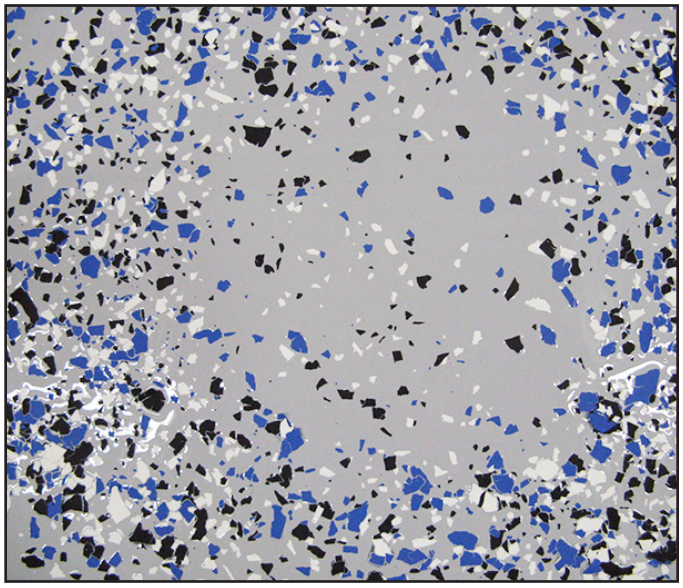
On flake systems or pigmented epoxies exposed to excessive UV or direct sunlight, install a 90% or total flake coverage system, apply Neogard pigmented urethane or polyaspartic topcoats (70805/7952, 70817/70819, or 70869/70819).

Uneven Flake Disbursement

Description

Even flake disbursement is a key factor in the aesthetics of a random flake flooring system. Having the same size and coverage of flakes is key to a uniform appearance.





Causes

- Flakes Broadcast Too Quickly: This leaves an uneven disbursement in the base coat. To ensure uniform coverage, make certain the broadcaster takes their time.
- Flakes Crushed During Broadcast: This causes variations in the size of flakes. Size variation of flakes in the floor is caused by crushing the flakes in hand as they are broadcast. Also, reaching for the flakes in the bucket, they are inadvertently crushed.
- Clumped Flakes: If clumped flakes are introduced into the wet base coat, they will dry in a clumped formation.

Repair

1. Sand the floor flat with a circular floor sander using #60–#80 grit sandpaper.
2. Vacuum all debris resulting from sanding.
3. Re-broadcast the system.

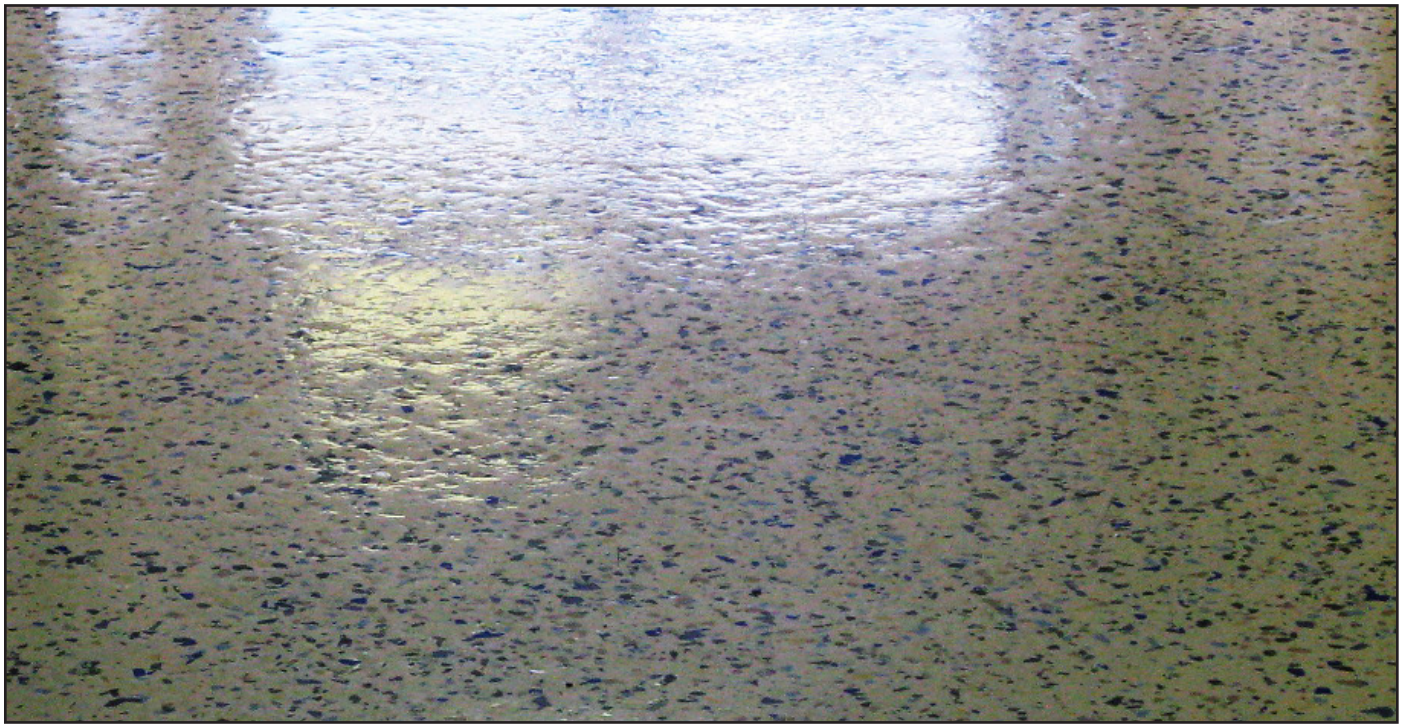
Prevention

- Ensure flakes are loose in your hand before broadcasting in the base coat.
- Gently handle the flakes during broadcast to ensure that the flakes are not crushed.
- Use a small bucket to hold the flakes. With a large bucket, the more flakes are carried, increasing the number of times the broadcaster puts their hand in the bucket, crushing the flakes into smaller pieces.
- Periodically empty the bucket, disposing of the small pieces and maintaining uniform same size flakes.
- Broadcast flakes evenly over entire floor to maintain flake pattern.
- Build a mockup of flake flooring systems. A mockup provides practice and proof-of-concept, and allows the owner to see the color blend, amount and size of flake, and finish texture.

Orange Peel

Description

Orange peel is a stipple finish appearance in the final topcoat of epoxy or urethane flooring system. Some flooring manufacturers offer this finish; however, it is not always desirable to the customer.



Causes

- Cold Substrate/Materials: If the substrate temperature is below 50°F/10°C, the epoxy or urethane will not flow and level out, and can produce the orange peel finish. This will be more prevalent if the topcoat is applied in a thin layer, somewhere between 3–6 wet mils. The combination of a cold substrate and cold materials can readily produce this type of finish.
- Hot Substrate/Materials: Hot temperatures can also result in an orange peel finish. If the substrate is above 90°F/32°C, the topcoat may cure too quickly. This rapid curing will cause the material not to flow and level out. Just as in cold temperatures, thin topcoat layers, hot substrate temperatures and hot material can produce an orange peel finish.

Repair

1. To remove the orange peel finish, sand the floor with a circular floor sander using 60–80 grit sandpaper. Sand the floor to a smooth finish.
2. Vacuum thoroughly to remove dirt/debris and solvent wipe with 7055 Odorless Reducer or 20653 Xylene.
3. Apply topcoat material.

Prevention

Hot Or Cold Substrate/Materials: Keep the substrate at 60°F or above and store materials at 70°F–75°F/21°C–23°C. If thinning is needed, thin with 08080 Hempel's Thinner or 7055 Odorless Reducer at 3%–5% by volume.

Peeling In Parking Areas

Description

Flooring system is delaminating and peeling in areas where tires are consistently in contact with the coating.

Causes

- Thin System Application: A floor coating system applied at insufficient coverage rates may delaminate.
- Project Specification: The applied system was not designed for project conditions.
- Poor Surface Preparation: Substrate was not properly prepared for acceptance of coating system.
- Improper Cure Time: Coating was not fully cured.

Repair

1. Remove all loose, peeling, or unbonded material.
2. Remove oil or grease by using an industrial-type degreaser or Neogard 8500 BioDegradable Cleaner. Deeply penetrated contaminants may require removal by mechanical methods.
3. Abrade concrete to ICRI CSP3 or CSP4 surface profile.
4. Ensure substrate is clean and dry prior to coating.
5. Re-apply coating as per Neogard Guide Specifications or the Neogard Flooring Application Manual.

Prevention

- Poor Surface Preparation: Mechanically prepare substrate to ICRI surface profile CSP3 or CSP4 . Ensure substrate is clean and dry.
- Project Specification/Thin System Application: Ensure that the appropriate system is specified for existing project conditions and intended use. Install coatings at recommended application rates.
- Improper Cure Time: Allow the system to fully cure for a minimum of 24–48 hours for foot traffic, forklift or heavy loads. Before the floor is subject to chemical exposure/spills, it should be allowed to cure for a minimum of 7 days.

Mechanical Damage

Description

Flooring system has been scratched and/or gouged.

Causes

- Pallets have been dragged or pushed across the floor.
- Heavy loads have been dropped onto the floor.
- Forklift forks have scraped the floor.

Repair

1. Remove all loose, peeling, or unbonded material down to sound concrete.
2. Lightly abrade the area using 60-grit sandpaper on a hand-held sander or floor buffing machine.
3. Clean floor to remove dust/debris from sanding.
4. Mix epoxy and fumed silica (Cab-O-Sil) to make patching material. (Refer to “Epoxy Patching and Mortar Blends” in the Neogard Flooring Application Manual for more information.)
5. Apply patching material to scratches/gouges and fill flush with existing floor level.
6. Re-apply epoxy topcoat or entire flooring system to match existing installed system.

Prevention

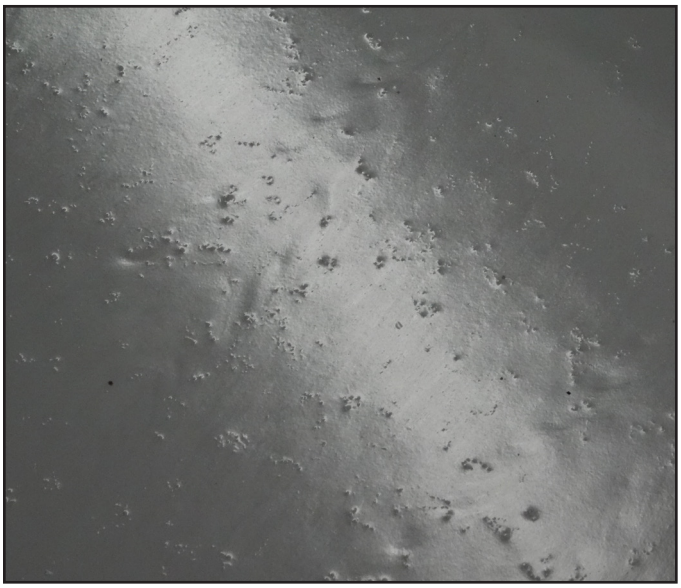
Avoid the following:

- Dragging or pushing pallets across floor surface, especially if the pallets have exposed nails.
- Dropping heavy objects or loads onto floor surface. Be sure to slowly lower heavy loads or objects to the floor.
- Allowing a forklift’s forks to scrape the floor surface. Make sure the forks are above the floor surface when the forklift is moving. Stop the forklift before lowering the forks.

Roller Lint In Coating

Description

Roller lint is embedded in the coating after application.



Causes

- Low-quality roller covers were used.
- Roller nap was too long.

Repair

1. Sand the floor using a floor sanding machine with 60-grit sandpaper until the surface is smooth. Note: You may need to sand down to the substrate.
2. Vacuum dust and debris.
3. Recoat the sanded area according to Neogard Guide Specifications or the Neogard Flooring Application Manual.

Prevention

- Only use high-quality, non-shedding roller covers.
- Use 1/4” or 3/16” nap mohair roller covers.
- Pre-roll covers on a piece of cardboard to help remove lint prior to applying material.

Roofing

Skin on Material in Container

Description

A skin forms on the top of the Material in a pail or barrel.

Causes

Single-component urethanes are moisture-cured. The pail or barrel has been opened, allowing moisture to be introduced to the coating material, and the curing process begins.

Repair

1. Remove the skin from the top of the product. Note: Be sure to remove all cured material from the container.
2. Mix the remainder of the coating material with a Jiffy Mixer using a maximum of 10% solvent to thin the material.

Prevention

- Open containers only when you are ready to immediately use the coating material.
- Use the entire container of coating material whenever possible.
- Pour a small amount of 08080 Hempel's Thinner or Neogard 7055 Odorless Reducer on the top of the coating material left in pail or barrel.
- Lay a piece of plastic directly over the remaining coating material.

Delamination

Description

The coating material loses bond between coats, or between the coating and the substrate.

Delamination due to thin topcoat and ponding

Delamination due to improper cleaning

Causes

- Insufficient Coating: System has not been applied to the minimum dry film thickness.
- Contamination: Moisture or debris was present on the surface being coated.
- Ponding: Areas where water remains longer than 48 hours.

Repair

1. Remove any poorly adhered material.
2. Clean affected area with Neogard 8500 BioDegradable Cleaner or solvent wipe. Extend cleaning 6”–8” beyond the affected area.
3. Add Tietex fabric to reinforce affected area.
4. Apply additional coating to yield 24 mils (dry film thickness) to cleaned area and allow to cure.

Prevention

- Insufficient Coating: Ensure that coatings are applied at recommended rates to achieve the specified dry film thickness. Frequently check wet film thickness making sure it complies with the recommended coverage rates. Check the previous day’s application with slits to verify dry film thickness.
- Contamination: Contaminants such as dirt, pollen, rust, mold, algae, leaves, tree limbs, nuts, water and other similar contaminants must be removed. Be careful of wind-borne debris and/or moisture settling in low areas between coating applications. Solvent wipe the surface between coating applications if necessary.
- Ponding: Areas that pond water may require additional cleaning prior to coating application. The use of stiff bristle brooms or mechanical scrubbers may be required to remove heavy deposits of dirt or other contaminants from the surface. After cleaning, be sure these areas are allowed to thoroughly dry prior to coating.

Foam Blisters

Description

Medium to large bubbles on the surface of the foam. They are typically randomly dispersed.

Typical unopened foam blister

Foam blister that has been cut open

Causes

- Moisture: Moisture present between lifts or passes of polyurethane foam can cause blistering.
- Foam-Related Issues: Adhesion between foam passes is too weak to withstand roof stress. This can be caused by slightly off-ratio mix, impurities in one of the foam components, foam left exposed to UV for an extended period of time or contaminants such as water or dirt.
- Thin Foam Application: Foam lifts or passes are applied less than 1/2 inch in thickness.

Repair

Closed/Unopened Blisters: Closed or unopened blisters are to be left as is, per Spray Polyurethane Foam Alliance guidelines.

Open Blisters:

1. Cut back blister until all non-bonded foam is removed.
2. Inspect area beneath the blister for degradation, moisture or other contaminants. Remove any contaminant and/or degraded foam.
3. Over-fill the void created by the blister removal with foam until it exceeds roof surface level.
4. Shear off and sand excess foam.
5. Solvent wipe existing coating 6”–8” beyond the repair area.
6. Coat the repair area with roofing system, overlapping a minimum of 6” onto existing coating surface.

Prevention

- Moisture: Be aware of sources of water contamination, including: condensation from air conditioner units; drink bottles; imminent rain or dew.
- Foam-Related Issues: Use summer/winter foam as appropriate. Maintain equipment to prevent off-ratio foam. Prevent contamination between lifts or passes of foam. Do not leave foam exposed beyond foam manufacturer’s acceptable guidelines. First base coat should go down the same day as the foam.
- Thin Foam Application: Apply foam in lifts of 1/2 inch or greater. If possible, apply the full thickness of foam on the same day.

Coating Blisters

Description

Small to medium bubbles in the coating surface They can be randomly dispersed or centralized in one location. Open blisters will typically be a single smooth bubble with no pinholes or multi-chambered cells.

Blister due to contamination

Trapped solvent blisters

Removed blister

Causes

- Water or Oil Contamination: Appear in clusters around the contamination source. Sources include: condensation from water bottles, soda cans, or coolers; sweat; dew or frost; leaky AC lines, oil leaks from compressed air lines/hoses, and oven vents.
- Trapped Solvent: Occur when solvent is trapped by a cured material surface. This can be the result of over-accelerating the coating, applying the coating too thick, when solvent used during cleaning has not flashed off prior to coating, or a solvent puddle remains in a low-lying area.

Repair

Water/Oil Contamination:

1. Remove all poorly adhered material.
2. Solvent wipe the affected area, or clean with Neogard 8500 BioDegradable Cleaner. Clean 6”–8” beyond the affected area.
3. Prime exposed non-foam substrates.
4. Apply base coat over primed areas.
5. Apply topcoat, extending material at least 4” beyond the repair area.

Trapped Solvent: Often, no repair is required. However, if repair is necessary:

1. Remove blister.
2. Clean affected area with Neogard 8500 BioDegradable Cleaner or solvent wipe. Extend cleaning 6”–8” beyond the affected area.
3. Prime any exposed, non-foam substrate.
4. Apply base coat over primed areas.
5. Apply topcoat, extending material at least 4” beyond the repair area. Apply coating in thinner coats, using multiple passes to achieve the specified thickness.

Prevention

Water/Oil Contamination: Remove contamination sources. Properly clean the substrate with a solvent wipe, or use Neogard 8500 BioDegradable Cleaner, or solvent wipe.

Trapped Solvent: During application do the following:

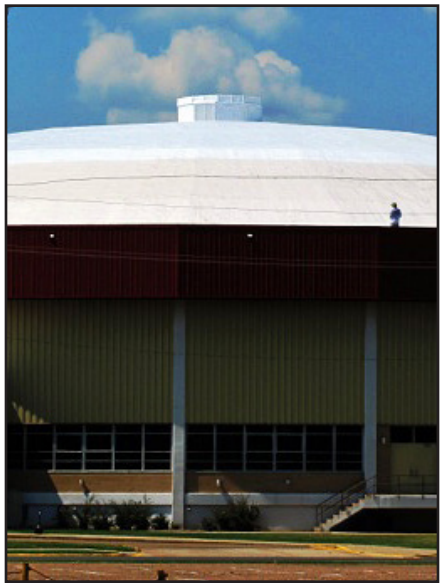
- Lay out the project prior to coating with an area grid.
- Frequently check the wet film thickness using mil gauges.
- Apply coating in thinner coats, using multiple passes to achieve the specified thickness.
- Avoid using accelerators during hot temperatures. See Weather Impact on Coating Materials in the Support Information section of this guide.

Dull Finish

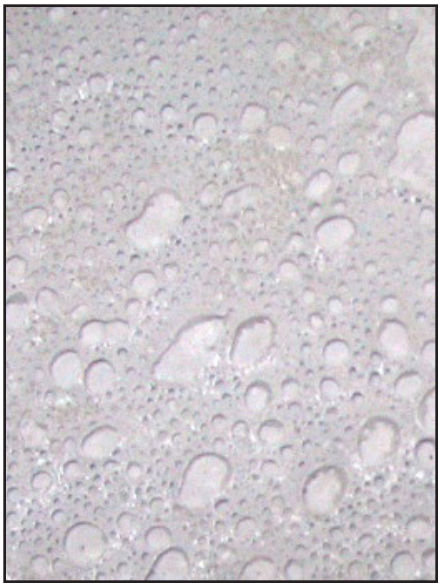
Description

Surface of coating does not cure to a glossy finish and reflect light, which is ideal for a roofing topcoat.

Roof with shade variation



Roof with moisture contamination



Magnified view of darker area

Cause

Presence of surface moisture or water exposure prior to cure.

Repair

Although this is typically an aesthetic issue, repairs can be made as follows:

1. Solvent wipe the affected area, or clean with Neogard 8500 BioDegradable Cleaner. Clean 6”–8” beyond the affected area.
2. Apply additional coating to achieve 12 mils DFT and allow to cure.

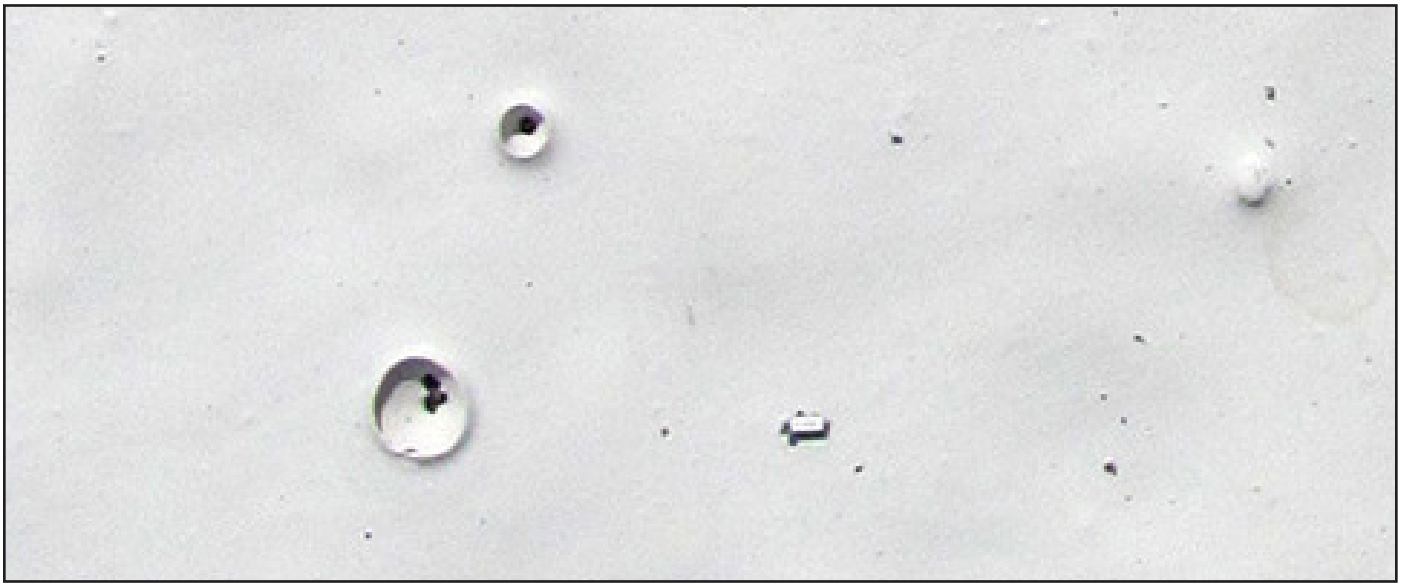
Prevention

Do not apply when temperatures are within 5°F/3°C of dew point or when rain is imminent.

Pinholes Due to Outgassing from Substrate

Description

Appear as tiny blisters or bubbles. When these blisters pop they usually leave a round crater. The pinhole should be easily seen through the film. Concrete decks are susceptible to this condition.



Cause

Develop from small open pockets or voids in concrete, known as pinholes. The coating may initially bridge these small openings. However, as temperatures rise, the concrete releases air and moisture vapor, blowing a bubble or blister, which typically ruptures.

Repair

1. Solvent wipe the affected area, or clean with Neogard 8500 BioDegradable Cleaner. Clean 6”–8” beyond the affected area.
2. After daytime heat, recoat the area with topcoat material, usually mixed with dry, fine sand at 1–3 pounds per 100 square feet. Work the wet coating and sand by backrolling to displace air trapped in the voids. Neogard additives or accelerators will help reduce self-leveling of the coating. Repeat if needed.
3. Apply additional topcoat material to yield 24 mils DFT to repair area and allow to cure.

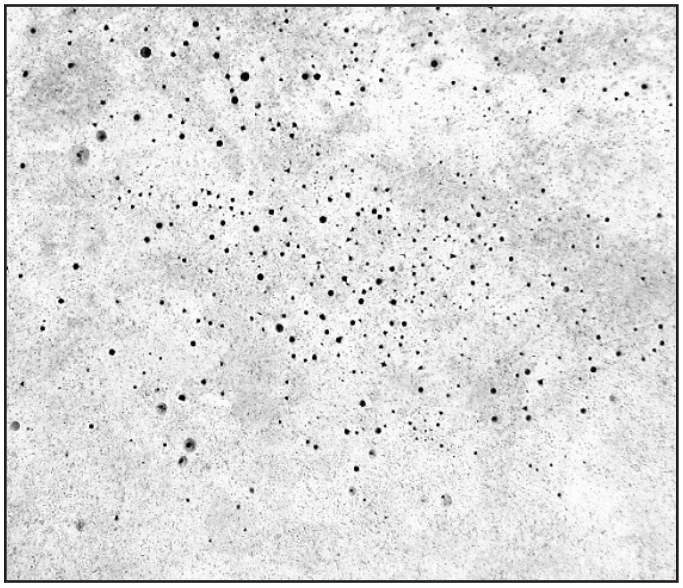
Prevention

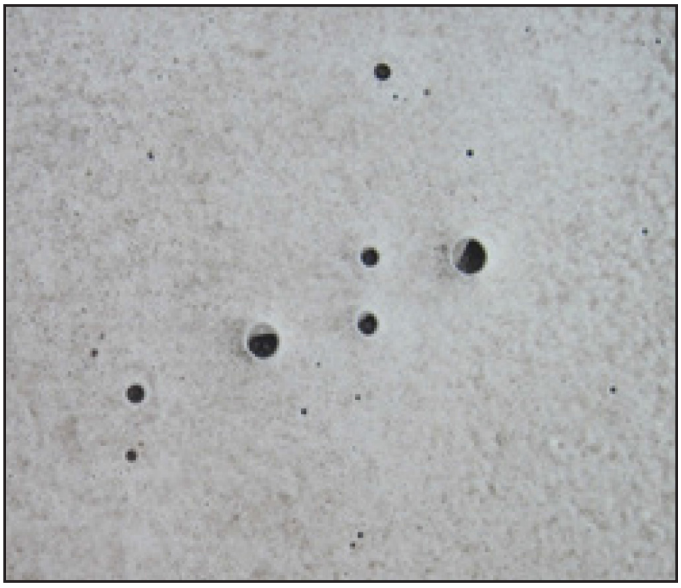
- In hot climates, apply the first coat—and optionally the second coat—when temperatures are low. Apply these coats during the last few hours of the day or overnight.
- Slightly increase the amount of primer being used.
- Apply the specified system in thinner coats. This procedure requires more coats to achieve application of the full system.
- Thin the material being used in the first base coat. Use only commercial grade solvents and never thin products more than 10% by volume. Excessive thinning may affect physical properties of the coating.
- Begin applying base coat as temperatures are dropping and continuing to drop. Rising temperatures result in expansion of the moisture and air in the substrate. Falling temperatures increase the tendency of the coating to pull down into the substrate. See Weather Impact on Coating Materials in the Support Information section of this guide.

Pinholes Due to Coating Outgassing

Description

Small voids which penetrate through the coating. A crosscut will show intact base coat material, with the voids contained only in the topcoat.





Causes

- Coating Applied Too Thick: Outgassing voids in the coating look similar to pinholes that originate in the substrate but are contained in the coating only. They are produced when entrapped solvents escape during the curing process. These voids will typically be restricted to areas in which the coating is applied thicker than published rates.
- Excessive Thinning: Excessive thinning may affect the physical properties of the coating, causing outgassing and pinholes.

Repair

1. Solvent wipe the affected area, or clean with Neogard 8500 BioDegradable Cleaner. Clean 6”- 8” beyond the affected area.
2. After daytime heat, recoat the area with topcoat material, usually mixed with dry, fine sand at 1–3 pounds per 100 square feet. Work the wet coating and sand by backrolling to displace air trapped in the voids. Neogard additives or accelerators will help reduce self-leveling of the coating. Repeat if needed.
3. Apply additional topcoat material to yield 24 mils (dry film thickness) to repair area and allow to cure.

Prevention

- Coating Applied Too Thick: Ensure that coatings are applied at recommended rates to achieve the specified dry film thickness. Apply the specified system in thinner coats. This procedure requires more coats to achieve application of the full system.
- Excessive Thinning: Use only commercial grade solvents. Never thin products more than 10% by volume.

Color/Shade Variation

Description

The coating appears to be different shades. This is most often noticeable in white products.

Causes

- Different Batch Numbers: Products from different batches can have slight variations in color.
- Topcoat Not Applied in a Single Application: The older coating has more UV exposure and has weathered.
- Improper Mixing: Pigment not thoroughly dispersed.

Repair

Although this is typically an aesthetic issue, the following repairs can be made:

1. Solvent wipe the affected area, or clean with Neogard 8500 BioDegradable Cleaner. Clean 6”–8” beyond the affected area.
2. Apply additional coating at 12 mils DFT to the cleaned area and allow to cure.

Prevention

- Different Batch Numbers: Ensure that you have enough topcoat from the same batch number to complete the entire project. Always purchase or set aside enough topcoat from the same production batch to coat the entire surface area. Use odd batches elsewhere such as in the intermediate coat if applicable. If there is not enough topcoat of a single batch to complete the project, ‘boxing’ batches is an alternative. Boxing is the process of combining all the coating you will be using as the topcoat into one large container. This is especially important when coating a large surface area or if there is insufficient coating from a single batch, where a color variation from one batch to another is likely.
- Topcoat Not Applied in a Single Application: Complete the topcoat application with minimal delay between applications.
- Improper Mixing: Always use a Jiffy Mixer paddle to mix products thoroughly before application. See Product Mixing Instructions in the Support Information section of this guide.

Yellowing

Description

Surface of coating has taken on a yellow hue. Yellowing may be splotchy.

Causes

- Oil: Oils migrating from the substrate can affect color.
- Pollen: Pollen may settle in wet coating, giving a yellow appearance.
- Leaves/Foliage: Contamination from plant debris on fresh coating can cause yellowing.
- Chemical: Chemicals from exhaust stacks and vents can leave oily or greasy residue on coating, causing coating to yellow.
- Use of Asphaltic Roof Cements: Using asphaltic roof cements to repair coating products or single ply membranes can cause yellowing.

Repair

Typically no repair is necessary for this condition. Most oils burn off from ultraviolet exposure. When the yellowing is excessive and/or the customer finds the appearance unacceptable, the contractor should first allow some weathering to reduce the migrating oil, then do the following:

1. Clear area of any debris.
2. Solvent wipe the affected area, or clean with Neogard 8500 BioDegradable Cleaner. Clean 6”–8” beyond the affected area.
3. Apply additional coating to the cleaned area at a minimum 12 mils DFT and allow to cure.

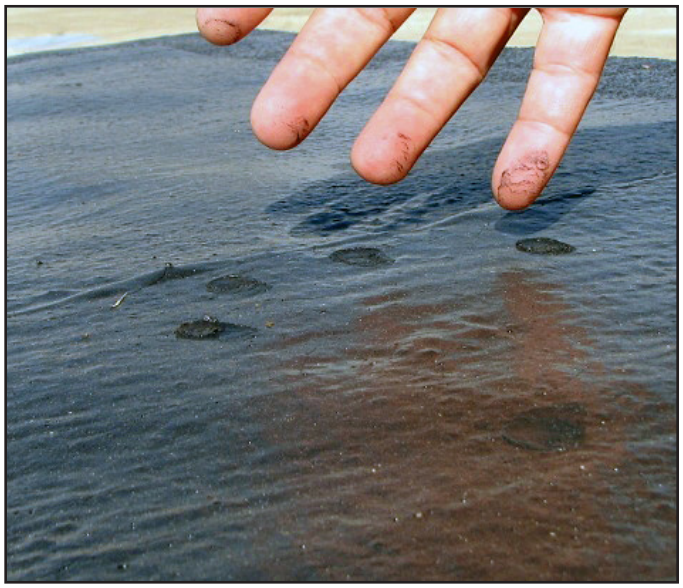
Prevention

- Oil: Use of a primer will reduce oil migration from the substrate.
- Pollen/Leaves/Foliage: Clean roof periodically and do not let foliage accumulate.
- Chemical: Check the job site every day for contamination and clean as necessary.
- Use of Asphaltic Roof Cements: Only use similar or like (i.e. for TPO, use TPO materials) products for repair.

Slow Cure/Not Curing

Description

After expected curing time has elapsed, coating is still soft and may transfer when touched.



Causes

- Cold Temperatures: Cure times are typically published at 75°F/23°C with 50% relativity humidity. As temperatures drop below 60°F/15°C and/or relative humidity drops below 30%, cure times can extend from 16 hours to days.
- Alcohol Contamination: Alcohol reacts adversely with the urethane coating resulting in improper cure, cross linking and film forming capabilities which can retard curing and/or cause delamination.

Repair

Cold Temperatures: Most slow cure issues can be corrected by allowing extended cure times. Typically coating will cure within a week with cool temperatures or low humidity. If extended water exposure occurs to the uncured base coat, the coating will need to be removed and replaced.

Alcohol Contamination:

1. Remove material down to clean substrate.
2. Apply primer, base coat, and topcoat as per Neogard system specifications, extending topcoat application 4” beyond the repair area.

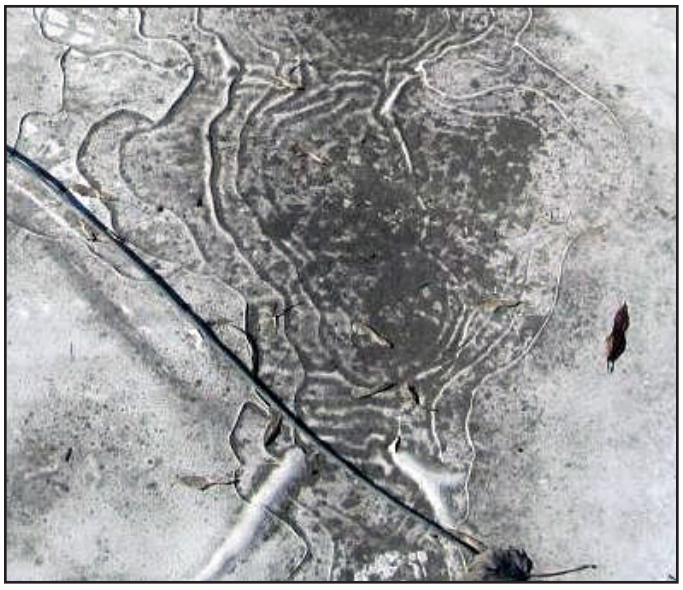
Prevention

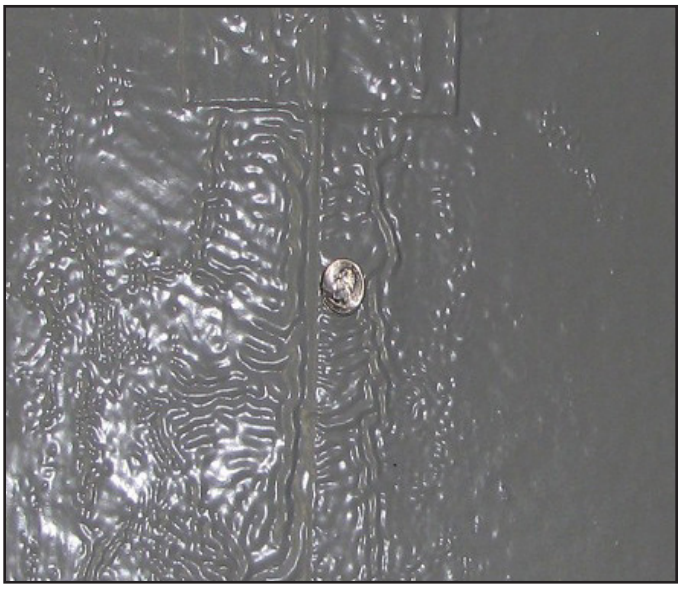
- Cold Temperatures: Do not apply when temperatures are below 45°F/7°C. Add urethane accelerators such as 7923, 7925, 7931 (Hempel 95053, 991JB, 99055) to coating prior to application when temperatures are below 60°F/16°C. Use a urethane accelerator for temperatures ranging from 40°F–50°F/4°C–10°C. See Weather Impact on Coating Materials in the Support Information section of this manual.
- Alcohol Contamination: Do not use alcohol-based solvents or cleaners on roofing projects.

Wrinkling

Description

Areas of the coating appear wrinkled.





Cause

Coating was applied before previous coats were allowed to cure. The topcoat application will appear smooth but is floating over a solvent rich base coat. Once the base coat material releases solvents, the film shrinks and it is 10%–20% smaller. The base coat pulls the topcoat material into wrinkles to alleviate the stress of the oversized surface.

Repair

Test the area for soft of spongy coating. Repair is only necessary if coating is excessively spongy, torn from traffic, or if customer is displeased with the aesthetics.

If repair is required, do the following:

1. Remove any poorly adhered or spongy material.
2. Solvent wipe the affected area, or clean with Neogard 8500 BioDegradable Cleaner. Clean 6”–8” beyond the affected area.
3. Prime exposed substrate.
4. Apply base coat according to Neogard system guide specifications.
5. Apply topcoat, extending topcoat 4” beyond the repair area.

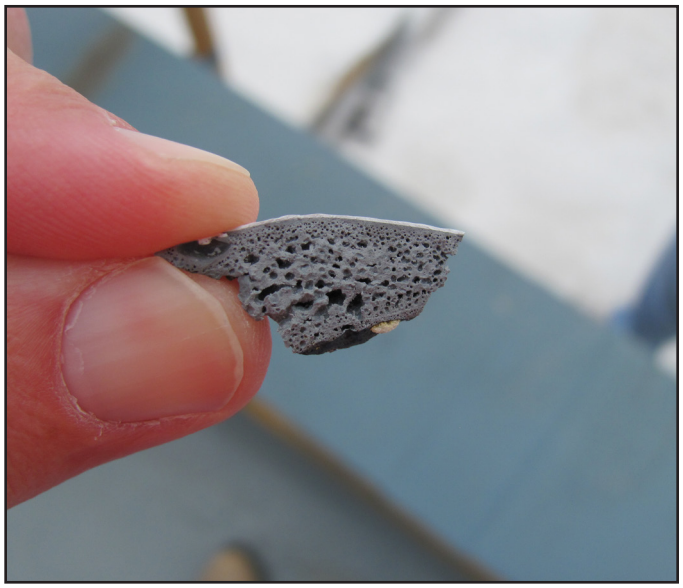
Prevention

Test coating prior to adding additional coats by touching the coat. If the coating transfers to touch or wrinkles when pushed, it has not cured. Additional coats should not be applied until the cure has increased past the point of wrinkles and transferring of coating.

Cellular Coating

Description

A cross section reveals a large number of open cells in the coating.



Causes

During the curing process, the coating surface can cure. The chemical reaction of isocyanate and moisture develops gas bubbles which are trapped in the coating film. The following conditions can cause cellular coating:

- Coating Too Thick: Applying elastomeric coatings too thick can result in a cellular film and may prevent trapped gas from being released.
- Moisture on Substrate: Moisture on the substrate prior to coating will give a similar cellular appearance.
- Improper Product Preparation: Improper preparation of the product prior to coating, such as over thinning or improper mixing.

Repair

1. Grind area down to solid material until no further cellular material is found.
2. Solvent wipe the affected area, or clean with Neogard 8500 BioDegradable Cleaner. Clean 6”–8” beyond the affected area.
3. Prime exposed substrate.
4. Apply base coat according to Neogard system guide specifications.
5. Apply topcoat, extending topcoat 4” beyond the repair area.
6. If multiple days pass between application, solvent wipe or pressure wash the area before proceeding with repairs.

Prevention

- Coating Too Thick: Do not exceed specified application rates. Use multiple coats to achieve required build if necessary.
- Moisture on Substrate: Ensure that the substrate is clean and dry prior to application of coating.
- Improper Product Preparation: Use only commercial grade solvents. Never thin products more than 10% by volume. See Product Mixing Instructions in the Support Information section of this guide.

Split Seams

Description

Coatings initially display a crack, transforming into a small blister-type opening. The coating will then form a fish mouth, and finally the sheet will separate and pull back to form a curled edge. Split seams typically occur in modified bitumen and asphalt cap sheets, and are compounded by ponding water.

Curled seam edge

Split seam

Causes

Seam Not Properly Detailed: Split seams are caused by thin coating application at the seam. When the membrane seam is not detailed to Neogard specifications, the coating will leave a thin edge on the top of the seam. Roof membrane seams vary from 40 mils to 240 mils; the coating will self-level at the seams. Thin coating on the seam, combined with the tension transfer from membrane sheet to membrane sheet, will create a stress crack across the top of the seam. Over time, this may turn into a larger split.

Repair

1. Remove all curled, loose, or poorly adhered material.
2. Solvent wipe the affected area, or clean with Neogard 8500 BioDegradable Cleaner. Clean 6”–8” beyond the affected area.
3. Prime exposed substrate.
4. Apply a detail coat of base coat material over primed areas at 24 mils DFT and embed minimum 6” wide reinforcing fabric into wet coating. Only use proper reinforcing fabric to detail seams or repairs. Do not use vinyl-type tapes; the coating will not adhere to these. Center the fabric over the split. Work reinforcing fabric into wet base coat material, using a brush or roller to eliminate air pockets, wrinkles and gaps. Apply additional base coat material as necessary to fully encapsulate reinforcing fabric.
5. Apply topcoat material, extending the material application 4” beyond the repair area.

Prevention

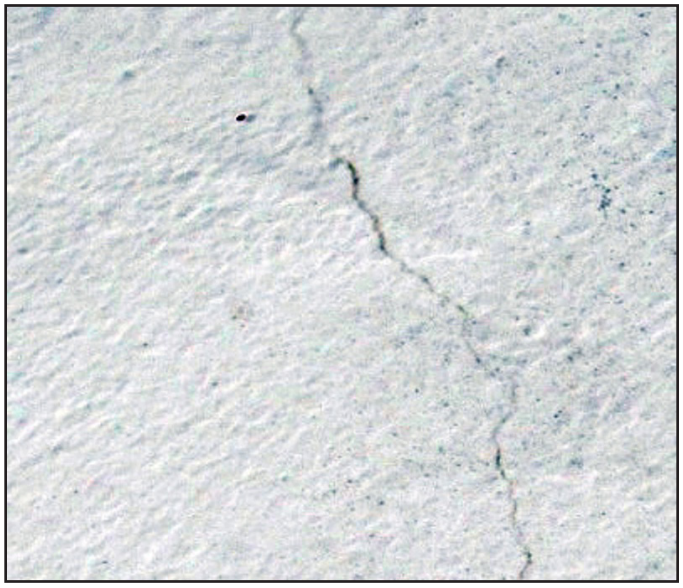
- To prevent splitting seams, detail all the original seams with adequate base coat material and embed Neogard 86220 Tietex roofing fabric into the wet coating.
- At pitch pans and penetrations, use sealant at bases where target paths have pulled and left open voids.

Settling Cracks in Concrete Roof Deck

Description

Cracks in concrete substrate may telegraph through the coating and become clearly visible. Over time, these cracks may increase in number as well as in size.

Crack before coating



Crack in coating telegraphed from concrete

Cause

Shifting and settling of the roof after construction.

Repair

Static Cracks:

1. Saw cut cracks to a minimum 1/4” width and minimum 1/4” depth.
2. Prime if necessary.
3. Fill with Neogard 70991 polyurethane sealant and strike flush with concrete deck. Allow sealant to fully cure.
4. Solvent wipe the affected area, or clean with Neogard 8500 BioDegradable Cleaner. Clean 6”–8” beyond the affected area.
5. Prime any exposed substrate.
6. Apply base coat material over any primed areas at 24 mils DFT and embed reinforcing fabric into wet coating, centering fabric over the saw cut crack. Allow to fully cure.
7. Apply additional base coat material as necessary to fully encapsulate reinforcing fabric.
8. Apply topcoat, extending application of material at least 4” beyond the repair area.

Dynamic Cracks:

1. Moving cracks are a fundamental issue related to the substrate and need to be addressed before repair can be done to the coating.
2. Once movement has been addressed, follow steps outlined for repairing static cracks.

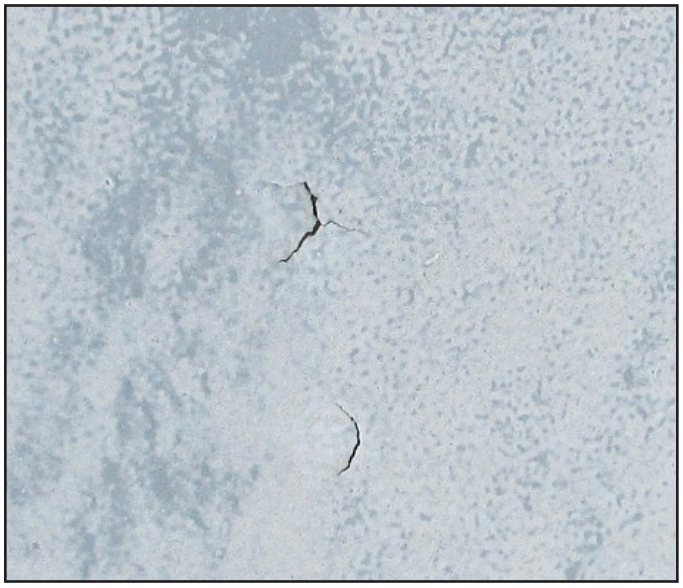
Prevention

This is an issue with the underlying roof structure and should be addressed as it occurs.

Hail Damage to Spray Polyurethane Foam Roof

Description

A random pattern of damage which ranges in size from ½–1”, repeated throughout large areas of the roof and not limited to single occurrences.



Cause

Hail stones impacting the roof. Roofs should be inspected for this type of damage after reports of hail storms in the vicinity.

Repair

1. Use a moisture meter to test the affected area. Polyurethane foam containing more than 15% moisture content must be removed and replaced.
2. If the damaged area is small—within the circumference of hail impact ring—remove with a small knife to sound polyurethane foam and fill with Neogard 70991 polyurethane sealant.
3. Bevel edges of repair for smooth transition between sealant repair and existing surface.
4. Solvent wipe surface adjacent to the repair. Extend cleaning 6”–8” beyond the repair.
5. Apply topcoat material as per Neogard system specifications, extending application of coating a minimum 4” beyond repair.

Prevention

None—hail damage can only be repaired.

Contaminated Coating

Description

Discharge from condensation lines of rooftop equipment causes contamination of the coating.

Disconnected condensate drain lines

Poorly maintained condensate drain lines

Cause

Poor Preventive Maintenance: Failure to perform routine maintenance on rooftop mechanical equipment.

Repair

1. Remove any poorly adhered material.
2. Any chemical, biological, or foreign contaminants from mechanical equipment must be removed from area with Neogard 8500 BioDegradable Cleaner. Stiff bristle brooms or mechanical scrubbers may be necessary to remove heavy contamination. Extend cleaning 6”–8” beyond the affected area.
3. After cleaning, be sure these areas are allowed to thoroughly dry prior to coating. Apply additional coating to yield 24 mils DFT and allow to cure.

Prevention

Follow a regimented preventive maintenance program on all roof-related equipment (condensate drain lines, exhaust hoods, and others). Inspect roof on a regular basis and perform necessary repairs on rooftop mechanical equipment.

Improper Surface Preparation: Repairs & Recoats

Description

Cause

Surface not cleaned properly and does not extend 6”–8” beyond the affected area.

Repair

1. Remove any deteriorated, and/or water saturated roofing materials, adhesives, and foreign materials down to the sound substrate.
2. Clean the affected area using Neogard 8500 BioDegradable Cleaner. Stiff bristle brooms or mechanical scrubbers may be required to remove heavy deposits or dirt from surface. Clean 6”–8” beyond the affected area in all directions.
3. Before proceeding with coating application, ensure that the substrate is clean, sound and dry.
4. Apply coating to yield 24 mils DFT and allow to cure.

Prevention

Perform proper surface preparation prior to application of coating. Ensure that the substrate is clean, sound and dry. Refer to Neogard Application Manuals for information on proper surface preparation.

Poor Drainage

Description

Water has ponded on the roof and has damaged the coating.

Scupper installed too high

Clogged roof drain

Causes

- Roof has insufficient positive slope for water to drain. Poor drainage and ponding water results in topcoat delamination.
- Improperly installed scuppers cause ponding of water and prevent drainage of low spots.
- Drains have not been cleaned periodically to remove debris and allow for proper roof drainage.

Repair

1. Remove any curled, loose, or poorly adhered material.
2. Repair any roof slope deficiencies. Replace or repair any damaged or non-working roof drainage.
3. Clean the affected area using Neogard 8500 BioDegradable Cleaner. Stiff bristle brooms or mechanical scrubbers may be required to remove heavy deposits or dirt from surface. Clean 6”–8” beyond the affected area in all directions.
4. Prime any exposed substrate.
5. Apply base coat material over any primed areas at a 24 mil (dry film thickness) and embed reinforcing fabric into wet coating, centering fabric and rolling with a semi-dry roller to remove any wrinkles and undulations. Allow to fully cure prior to any additional coating applications. Apply additional base coat material as necessary to fully encapsulate reinforcing fabric.
6. Apply topcoat, extending application of material at least 4” beyond the repair area.

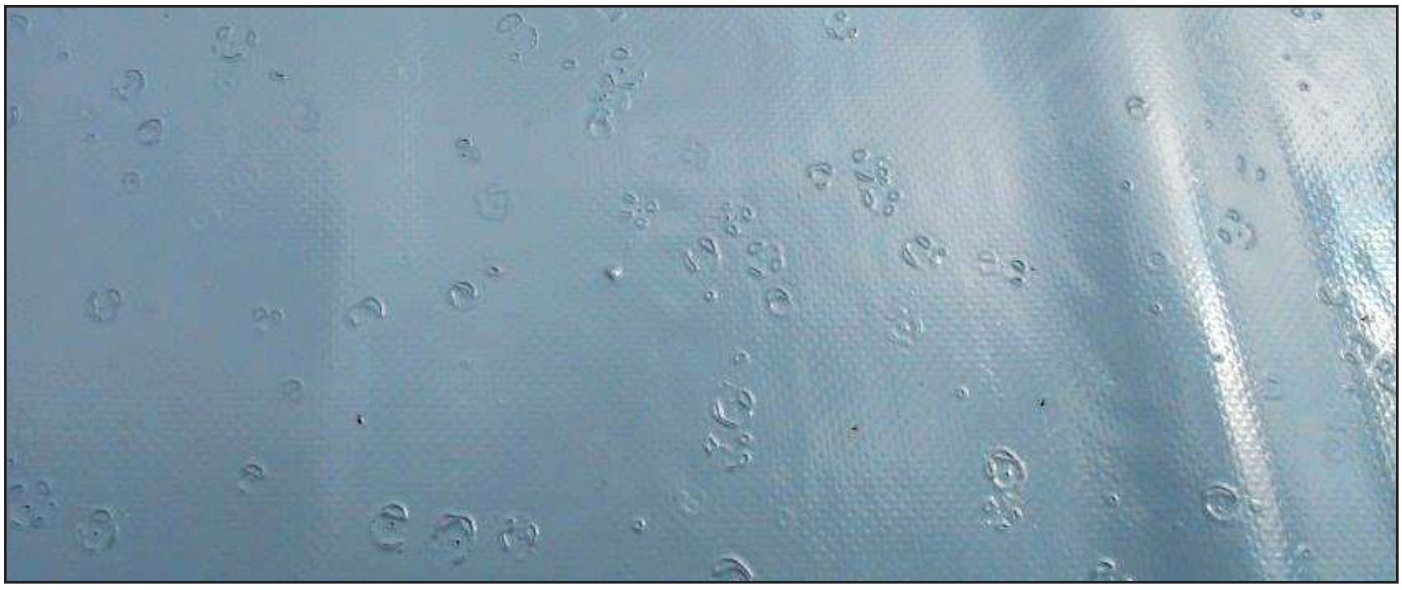
Prevention

- Inspect roof on a regular basis to ensure the roof has sufficient positive slope for water to drain, preventing ponds. Water should not remain on a roof surface longer than 48 hours after the end of the most recent rain.
- Roof drains and scuppers should be inspected and cleaned periodically.

Water Damage to Uncured Coating

Description

Surface has craters or dimples where rain has fallen on uncured coating.



Cause

Rain occurred before the coating system had time to fully cure, causing dimples on the surface.

Repair

1. Clean affected area with Neogard 8500 BioDegradable Cleaner. If coating system is more than 24 hours old, the surface may need to be solvent wiped. Extend the cleaning 6”–8” beyond the affected area.
2. Recoat the affected area with material to produce system’s intended DFT.
3. Allow coating material to fully cure between coats.

Prevention

Do not proceed with application of materials if rain or other precipitation is imminent.

Improper Application Technique

Description

A 1/4” notched squeegee was used to apply coating, and the coating was not backrolled.

Causes

Proper application technique was not followed. Coating was applied with a notched squeegee but was not backrolled.

Repair

1. Solvent wipe the affected area, or clean with Neogard 8500 BioDegradable Cleaner. Clean 6”–8” beyond the affected area.
2. Apply coating material using a 1/2” roller nap and roll evenly until ridges are gone and the surface is smooth, taking care to avoid puddling of material. Confirm that coating will meet the dry mil requirements.
3. Allow coating to cure.

Prevention

When coating is applied with a notched squeegee, it is essential to backroll in order to achieve specified coverage rates and even distribution of coating and aggregate.

Support Information

Dew Point of Moist Air

Dew Point is the temperature at which moisture will condense on a surface. No coatings should be applied unless surface temperature is a minimum of 5°F/3°C above this point. Temperature must be maintained during curing.

The following table illustrates how to determine the dew point:

		Ambient Air Temperature										
		20°F -7°C	30°F -1°C	40°F 4°C	50°F 10°C	60°F 16°C	70°F 21°C	80°F 27°C	90°F 32°C	100°F 38°C	110°F 43°C	120°F 49°C
Relative Humidity	90%	18°F	28°F	37°F	47°F	57°F	67°F	77°F	87°F	97°F	107°F	117°F
	85%	17°F	26°F	36°F	45°F	55°F	65°F	75°F	84°F	95°F	104°F	113°F
	80%	16°F	25°F	34°F	44°F	54°F	63°F	73°F	82°F	93°F	102°F	110°F
	75%	15°F	24°F	33°F	42°F	52°F	62°F	71°F	80°F	91°F	100°F	106°F
	70%	13°F	22°F	31°F	40°F	50°F	60°F	68°F	78°F	88°F	96°F	105°F
	65%	12°F	20°F	29°F	36°F	47°F	57°F	66°F	76°F	85°F	93°F	103°F
	60%	11°F	19°F	27°F	36°F	45°F	55°F	64°F	73°F	83°F	92°F	101°F
	55%	9°F	17°F	25°F	34°F	43°F	53°F	61°F	70°F	80°F	89°F	96°F
	50%	6°F	15°F	23°F	31°F	40°F	50°F	59°F	67°F	77°F	86°F	94°F
	45%	4°F	13°F	21°F	29°F	37°F	47°F	58°F	64°F	73°F	82°F	91°F
	40%	1°F	11°F	18°F	26°F	35°F	43°F	52°F	61°F	69°F	78°F	87°F
	35%	-2°F	8°F	16°F	23°F	31°F	40°F	48°F	57°F	65°F	74°F	83°F
	30%	-6°F	4°F	13°F	20°F	28°F	36°F	44°F	52°F	61°F	69°F	77°F

Example: If ambient air temperature is 70°F (21°C) and relative humidity is 65%, the dew point is 57°F (14°C). No coating should be applied unless the surface temperature is 62°F (17°C) minimum (57°F + 5°F = 62°F, or 14°C + 3°C = 17°C).

Coverage Rates

Theoretical vs Actual

Theoretical coverages are those calculated for glass-smooth surfaces with no allowances made for loss. Manufacturers publish theoretical coverages instead of actual coverages because they cannot anticipate job or surface conditions. Therefore, published coverage rates should only be used as a guide for estimating material requirements for a given job.

Actual coverage will be less than theoretical coverage. When coatings are applied over concrete, many factors, such as the surface texture, overspray loss, container residue, equipment characteristics, applicator technique, etc. will directly affect the amount of coating material required to meet the designed in-place dry film thickness (DFT). Therefore, it is very important that additional material be added to the theoretical quantities to ensure that the proper coating thickness is applied. Items to consider are:

- Shot-blasted Concrete–Even though the surface texture appears to be fairly smooth, this surface can require 5% to 15% additional material to the theoretical amount.
- Wind Loss–In spray applications, up to 30% of the coating may be lost due to wind. Consider using wind screens and add wind loss to your coating calculations.
- Miscellaneous Loss–A miscellaneous factor must be added to the theoretical coverage rate to cover losses due to material left in containers, equipment problems, etc. Use a percentage factor of between 3% to 10%, depending on the contractor's experience and efficiency.

Calculating Theoretical Coverage

Any liquid, when applied at a thickness of one mil (1/1000 inch) will cover 1604 square feet per gallon. Another way to state this is that one gallon of any liquid, applied over a 100 square foot surface, will be 16 mils thick when wet. To determine dry mils (or how much is left when the solvents are gone), multiply 16 (wet mils) times the solids content (by volume) of the particular liquid. Solids by weight should not be used in this formula.

Example:

- 50% solids by volume = 16 (wet mils) x 0.5 (50% solids by volume) = 8 dry mils.

To determine how much total material is required to cover 100 square feet, divide the total system thickness (expressed in mils) by the number of dry mils per gallon.

Example:

1. System = 32 dry mils total
2. Material (50% solids by volume) = 8 dry mils per gallon
3. 32 divided by 8 = 4 gallons per 100 square feet
4. % Solids by Volume X 1604 ÷ Desired Dry Mils = Coverage Rate

Calculating Actual Coverage

To determine total material requirements for a job, add estimated losses due to field conditions to theoretical coverages. Depending on jobsite conditions, up to 50% additional material may be required to meet the designed in-place dry film thickness (DFT).

Weather Impact on Coating Materials

Neogard single- and two-component polyurethanes are designed to be applied through an ambient temperature range of 70°–90°F (21°–32°C) to provide ideal handling and application characteristics. However, substrate temperatures can affect the cure of the polyurethane materials as much as or more than ambient temperatures and roof surface temperatures may far exceed ambient temperatures.

Cold Weather Impact

Note: Application of heated material to a cold substrate will not reduce curing time.

As material component temperatures drop below 60°F (16°C), material viscosity increases. An increase in material viscosity increases the material's resistance to flow and can result in the following:

- Single component systems that utilize accelerators become difficult to mix. If the accelerator is not thoroughly mixed with the polyurethane, the cure of the material will slow.
- Two component systems become more difficult to mix. If a thorough mix is not obtained, the off-ratio mixture can cause improper curing.
- Polyurethanes become more difficult to spray, producing erratic spray pressures, poor atomization, fingering at the spray tip or a complete loss of the spray pattern. Added solvent in the polyurethane material will slow the cure time, change the thixotropy, and change the dry film thickness. This can lead to material puddles, uneven coating coverage and an added expense to job cost due to downtime.
- Accelerators and catalysts are designed to provide good pot life and reasonable cure of materials at

70°F–90°F/21°C–32°C. As material temperatures become colder and start to drop below 60°F/15°C, the pot life of the material is increased and the cure is slowed. If the material is applied at 60°F/15°C and the air temperature drops to 40°F or below, the cure is significantly slowed, particularly in windy conditions. The cure is further slowed due to poor solvent evaporation at cold temperatures. Materials that normally cure at a rate of 8–12 hours can be extended to 14–24 hours or more.

Recommendations: Keep enough material at 70°F–80°F/21°C–27°C for about 2 days of production. When possible, apply the coatings earlier in the day, making sure the substrate is dry, and stop early enough to allow several hours of cure from the sun. If the application area is enclosed with no exchange of air over the membrane, the relative humidity (moisture) may be severely reduced, resulting in a slow curing time.

Hot Weather Impact

High substrate, ambient, and material temperatures can impact material viscosity and accelerate the curing process. Single component, solvent based products cure from the top down. If the surface of the coating skins over too quickly, the solvents that are released during the curing process become trapped, resulting in blisters and/or bubbles in the coating. Two component products are also affected by high temperatures as the chemical reaction between the two components is accelerated. Pot life and working time can be reduced significantly. To minimize the impact of high temperatures during coating application:

- Store material in a cool, dry place; never in direct sunlight or in areas of high temperatures. The mixing station should also be in a shaded area.
- Consider coating in the evening as the substrate cools, or if applicable, on the shady side of the building. This will help to minimize outgassing as the material cures and extend working time of the material.
- As the material viscosity decreases, the sag resistant properties will also be affected. In sloped areas, it may be necessary to apply the specified system in thinner coats, increasing the number of coats required to apply the full system. Neogard's 7922 Vertical Additive is compatible with most Neogard single component, solvent based coatings and will enhance the sag resistant properties of the coating material. Contact Neogard Technical Service for specifics.

Surface Conditioners for Structural Concrete Decks

Surface conditioners are used to fill voids, areas of aggregate loss and excessively rough, damaged or exposed aggregate surfaces prior to the application of Neogard Auto-Gard and Peda-Gard traffic bearing waterproofing systems in order to assure effective installation and long term performance.

Neogard offers two variations of surface conditioners for patching or resurfacing structural concrete decks:

- 70702/70703: Two component, 100% solids epoxy slurry that is specially formulated to resurface deteriorated concrete to leave a smooth, durable finish.
- 70714/70715-09: Two-component, 100% solids epoxy resin, designed as an economical super high strength binder. A 1:1 by volume mix of #200 fumed silica flour and mixed 70714/70715-09 makes an excellent concrete surface conditioner. The following mix will yield approximately 4.8 gallons of mixed material. Spread at approximately 50 square feet per gallon.

Application Methods

- For a smooth surface, apply epoxy slurry mix to effected areas with a notched squeegee and allow to cure. Do exceed 1/4" in depth per application.
- For filling in depressed, scaled or exposed aggregate areas of the structural slab, spread epoxy slurry mix to affected areas with a notched squeegee and immediately broadcast 16-30 mesh aggregate into wet mix to rejection. Do not exceed 1/2" in depth per application. Allow to cure and remove excess aggregate.

(continued on next page)

Note: The surface profile obtained by broadcasting 16-30 mesh aggregate into the epoxy slurry will leave a rough surface and will require a grout coat of neat epoxy applied at the rate of 1/2 gallon per 100 square feet or a fill coat of polyurethane Base Coat at the rate of 3/4 gallon per 100 square feet prior to the application of either Auto-Gard or Peda-Gard. In lieu of applying the epoxy neat coat or polyurethane Base Coat, surface can be ground smooth with the use of terrazzo or portable cup grinders.

Consult these products' SDS for instructions on safety and handling.

Product Mixing

Use a low-to-medium speed drill and a Jiffy Mixer, shown at right, to mix all materials thoroughly. Mixing at high speed or with the wrong mixer can introduce air bubbles into the coating. These bubbles may develop into blisters during application.

Note: If a film of cured material is found on the top of the coating product when opened, remove the film. NEVER mix cured material into coating.

Single Component Polyurethane Coatings

Read Product Data Sheets and container labels prior to mixing materials.

Thin materials only after they are mixed. Thin materials by at most 10%. See "Thinning and Cleaning Solvents" in the Support Information section of this Application Manual.

Read instructions for using accelerators in "Additives" in the Support Information section of this Application Manual.

Two-Part Polyurethane Coatings or Epoxies

Caution: Two-component materials must be mixed thoroughly.

Check the product's mix ratio on container labels, Product Data Sheets, and in this Application Manual prior to mixing materials. Proper ratios are essential for coating performance and development of physical properties. Off-ratio materials will improperly cure and not meet their physical specifications.

The curing agent—sometimes called the catalyst or B-side—is always to be added to the base. Never add the base to the curing agent; the materials will not mix properly.

Mix the base thoroughly for 3–5 minutes before adding the curing agent. This ensures proper color distribution.

Once the base and curing agent are combined, mix them together. Mix 5-gallon or smaller buckets for a minimum of 5 minutes, and 55-gallon drums for a minimum of 20 minutes.

Thin two-part materials only after they are mixed. If materials are thinned prior to mixing, proper coating ratios will not be achieved. Thin materials by at most 10%. See "Thinning and Cleaning Solvents" in the Support Information section of this Application Manual.

When pumping a two-part polyurethane through plural-component equipment, be sure to thoroughly mix the base prior to pumping. Thinning must be done equally to both the base and curing agent prior to spraying.

RTS Products

Add the appropriate dosage of Neogard 600 RTS BPO Initiator to all materials and mix thoroughly before applying. Refer to the RTS BPO Initiator Dosage Chart in the Support Information section of this Application Manual for the correct amounts. An RTS BPO Initiator Dosage Chart is also available on Neogard PMMA/PUMA Product Data Sheets.

Pigmented Slurry Mixes

When mixing pigmented epoxy and 86468 silica flour 1:1 by volume to create a slurry mix, the viscosity of the mix can increase, particularly in temperatures below 65°F/18°C. This will affect the flow and leveling characteristics of the mixed material. Add solvent or 7055 Odorless Reducer at approximately 3%–5% by volume to increase workability of the slurry mix. If solvent cannot be used, the amount of 86468 silica flour can be reduced to help with flow and leveling of the slurry mix.

Example: If initial mix (3 gallons epoxy to 3 gallons 86468 silica flour) is not flowing or leveling, try decreasing the 86468 silica flour by 1/2 to 1 gallon.

Note: Reducing the amount of 86468 silica flour will increase the amount of epoxy necessary to achieve specified mil thickness. Certain job conditions may require the addition of solvent as well as decreasing the amount of 86468 silica flour used. See “Thinning and Cleaning Solvents” in the Support Information section of this Application Manual.

Neocrete SL Systems (including Broadcast, Flake, and Quartz)

The mix ratio is 200 oz. of 70800 series resin to 126 oz. of 70801 hardener.

Caution: Improper mix ratio of these components will cause the system to be soft or uncured.

Caution: Once the 70804 powder has been added to the 70800/70801 liquids, blending must occur immediately, as the material has begun to react.

5. Pre-mix the 70800 component for 3 minutes prior to adding the 70801 hardener.
6. Once the components have been added together, mix for 1 minute and then slowly add **one** 53-lb bag of 70804 SL powder.
7. Mix the liquids and powder using a high speed dispersion blade (preferred) or a high speed drill with a Jiffy mixing paddle, for approximately 3 minutes or until powder is thoroughly blended, making sure there are no clumps in the material.
8. Immediately apply using a gauge rake to desired thickness.

Adjusting for Temperature: In warm temperatures, adding 7055 Odorless Reducer at 3%–5% by volume will extend working time. In cooler temperatures, adding 7055 Odorless Reducer at 3%–5% by volume will improve flow and leveling. See “Thinning and Cleaning Solvents” in the Support Information section of this Application Manual.

Neocrete Trowel

Mix ratio is 200 oz. 70800 series resin to 126 oz. of 70801 hardener.

Caution: Improper mix ratio of these components will cause the system to be soft or uncured.

Caution: Once the 70802 powder has been added to the 70800/70801 liquids, blending must occur immediately, as the material has begun to react.

1. Pre-mix the 70800 component for 3 minutes prior to adding the 70801 hardener.
2. Once the components have been added together, mix for 1 minute and then slowly add **two** 50-lb bags of 70802 powder. Mix in a small mortar mixer; do not mix with a drill and mixing paddle. The 70802 powder must be thoroughly blended. Agitate by moving mixing paddle back and forth while mortar mixer is spinning. This may take 4–5 minutes.
3. Once blended, immediately apply to properly prepared substrate to desired thickness.

Adjusting for Temperature: In warm temperatures, adding 7055 Odorless Reducer at 3%–5% by volume will extend working time. In cooler temperatures, adding 7055 Odorless Reducer at 3%–5% by volume will improve flow and leveling. See “Thinning and Cleaning Solvents” in the Support Information section of this Application Manual.

Field Adhesion Testing

Conduct field adhesion tests to confirm the proper procedure for recoating an existing coating system as well as system compatibility. Neogard recommends performing one of the following adhesion tests. Conduct adhesion testing in the field, as it represents actual job conditions. The following are summaries of adhesions tests. For further information please refer to ASTM standards.

ASTM D903

Standard Test Method for Peel or Stripping of Adhesive Bonds. This test is also known as the “Adhesion in Peel” or “Peel Adhesion” test and results in a quantitative value stated in lbs./linear inch or PLI.

Items Needed

- Solvent/Cleaner
- Clean Rags
- Primer (if applicable)
- Coating Material
- 4” Roller/Cover or 3” Brush
- Fabric test strips cut to 1” x 18”-24”
- Painter’s Tape
- Utility Knife
- Spring Scale/Fish Scale (calibrated to pounds and ounces)

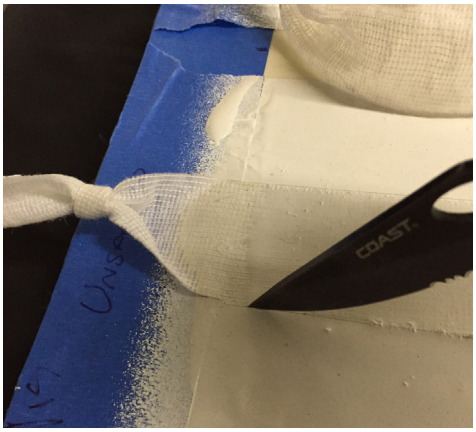
Procedure

1. Clean and prepare substrate as required by relevant specification.
2. If applicable, apply primer and allow to cure.
3. Apply coating at 16 wet mils. Coating is applied to an area 4” X 14” minimum.

4. Work fabric strips into wet coating, allowing 6” of fabric to remain free of coating. Adhere the loose end of fabric to the substrate utilizing painter’s tape.
5. Allow coating to cure.

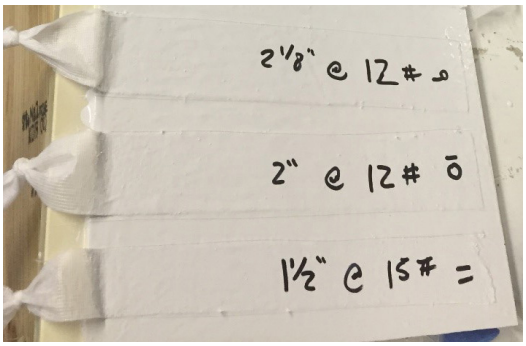
6. Apply topcoat to test area at 16 wet mils.
7. Allow coating to cure 7–10 days.

8. Remove painter's tape and tie a knot in the dry end of the fabric.
9. With the knife, score coating along the perimeter of the fabric.



10. Using a calibrated spring scale, hook the knot and pull back 180 degrees, parallel to the fabric.

11. Record the pounds per inch that separation occurred, making sure to divide the pounds of the pull by the width of fabric.
    - Test values of 4 to 5 pounds/inch for urethanes are acceptable for recoat situations.
    - Test values of 2 pounds/inch for acrylics are acceptable for recoat situations.



Rag Test

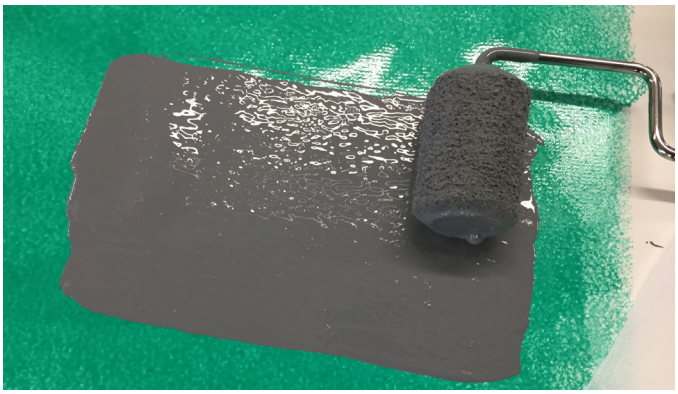
This test gives an indication of bond strength without numeric value. It is typically the recommended procedure for field adhesion tests. In these photos, the substrate is shown as white, primer is green and the coating is charcoal.

Items Needed

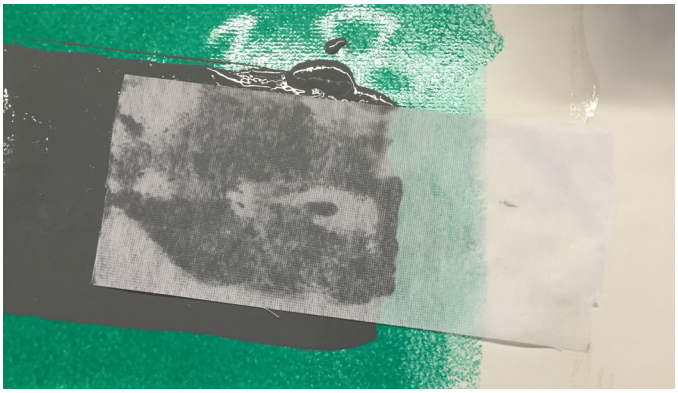
- Solvent/Cleaner
- Clean Rags
- Primer (if applicable)
- Coating
- Roller or Brush
- Polyester Fabric

Procedure

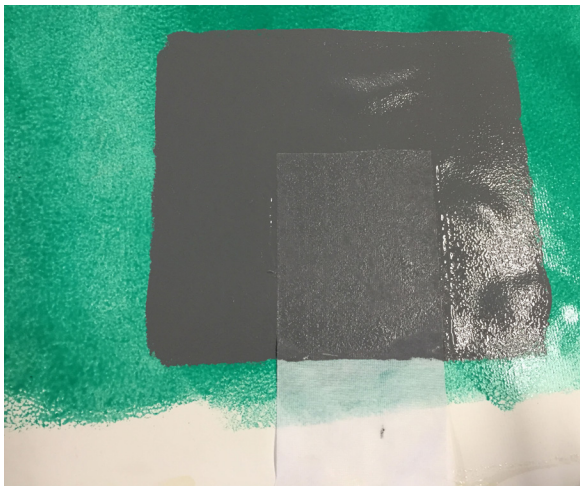
1. The substrate is prepared as required by the relevant specification.
2. If applicable, apply primer and allow to cure.
3. Apply coating with roller or brush..



4. Work fabric into wet coating.



5. Apply additional coating to embed fabric, allowing a minimum of 6” in length to remain free of the coating.



6. When coating has fully cured, generally allowing 7–10 days, pull the free end of the fabric back toward the test area for an indication of bond strength.

ASTM D7234 (Concrete Substrates)

This is a standard test method for determining pull-off strength of coatings using portable pull-off adhesion testers and was developed for concrete substrates. The following is a summary of the test procedure. For further instruction, please see the ASTM standard as well as directions provided by manufacturer of the portable pull-off adhesion tester.

Items Needed

- Solvent/Cleaner
- Clean Rags
- Utility Knife
- Adhesive
- Portable pull-off adhesion tester
- Puck or Dolly (loading apparatus)

Procedure

1. Score through coating down to concrete substrate at a diameter equal to diameter of the puck (dolly). Secure the puck (dolly) to the face of the coating with an adhesive.

2. Once the adhesive has cured, the portable pull-off adhesion tester is attached to the puck (dolly) and aligned to apply tension normal to the test surface.
3. The force applied to the puck (dolly) is then increased and monitored untiil a plug of material is detached.
    - When a plug of material is detached, the exposed surface represents the plane of limiting strength within the system.
    - The nature of the failure is qualified in accordance with the percent of adhesive and cohesive failures and the actual interfaces and layer involved.
    - The pull-off adhesion strength is computed based on the maximum indicated load, the instrument calibration data and the surface area stressed. Strength results using different portable pull-off adhesion testers may vary based on instrumental parameters.
    - Test values above 150 psi are considered acceptable for new and recoat applications.

ASTM D4541 (Metal Substrates)

This is a standard test method for determining pull off strength of coatings using portable pull-off adhesion testers and was developed for metal substrates. The following is a summary of the test procedure. For further instruction, please see ASTM standard as well as directions provided by manufacturer of the portable pull-off adhesion tester.

Items Needed

- Solvent/Cleaner
- Clean Rags
- Utility Knife
- Adhesive
- Portable pull-off adhesion tester
- Puck or Dolly (loading apparatus)

Procedure

1. Score through coating down to metal substrate at a diameter equal to diameter of the puck (dolly). Secure the puck (dolly) to the face of the coating with an adhesive.

2. Once the adhesive has cured, the portable pull-off adhesion tester is attached to the puck (dolly) and aligned to apply tension normal to the test surface.
3. The force applied to the puck (dolly) is then increased and monitored until a plug of material is detached.
    - When a plug of material is detached, the exposed surface represents the plane of limiting strength within the system.
    - The nature of the failure is qualified in accordance with the percent of adhesive and cohesive failures and the actual interfaces and layer involved.
    - The pull-off adhesion strength is computed based on the maximum indicated load, the instrument calibration data and the surface area stressed. Strength results using different portable pull-off adhesion testers may vary based on instrumental parameters.
    - Test values above 150 psi are considered acceptable for new and recoat applications.

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Hempel (USA) Inc
2728 Empire Central,
Dallas, TX 75235
Tel: +1 (214) 353-1600

Neogard.com

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