

TECHNICAL TROUBLESHOOTING GUIDE

WATERPROOFING, FLOORING & ROOFING CAUSE, REPAIR & PREVENTION



INTRODUCTION

Elastomeric coating technology, from product development to application, has expanded at great speed in recent years. Experience and knowledge are essential for keeping pace and excelling in this ever-expanding arena.

Developing this knowledge involves learning curves and years of experience. Against a backdrop of intensive competition in the industry, association with experts in the field of elastomeric coating materials is a determining advantage.

This guide has attempted to categorize and comprehensively interpret several decades of knowledge for your use. Many troubleshooting causes and repair procedures as well as preventions are provided in this guide.

We hope this guide provides you with assistance in your daily construction schedules and look forward to a continuing relationship with your company for all your waterproofing, roof coating and flooring needs.

For questions related to this manual contact leo@adcrete.com

PINHOLES DUE TO OUTGASSING

DESCRIPTION

Pinholes are small diameter holes in the coating that are readily visible. When these blisters pop they usually leave a round crater and the pinhole should be easily seen through the transparent film. They may be randomly dispersed or concentrated to a certain area of the coated surface.

CAUSE

- Concrete releases air and moisture vapor that expands as temperatures rise.
- Aggressive shot-blasting or scarifying opens concrete pores and bug holes.
- Air entrapped in wear coat when aggregate is applied too heavy, leaving entrapped air pockets.
- Introducing air into coating during application with aggressive rolling.
- Using improper roller cover with too large nap can introduce air into coating.
- Introducing air into coating during mixing by using wrong mixing paddle or too high rpm power drill.
- Over accelerating the coating. Air from the substrate or chemical reaction with the coating cannot escape properly during the curing process.
- Adding solvents can result in surface pinhole blisters if the solvent is not allowed to escape prior to gel/cure.

REPAIR

The blisters need to be broken with a stiff bristle broom or squeegee before another coat is applied. A light abrasion may be required to maintain good aesthetic appeal. Large areas of pinholes may need to be ground with a cup grinder and additional coating applied.

PREVENTION

- Begin application as temperatures are dropping and continuing to drop. Rising temperatures result in detrimental expansion of the moisture and air in the concrete. Falling temperatures do the opposite; the air and moisture are contracting within the concrete.
- Double prime or increase slightly the amount of primer being used for the system.
- Apply the specified system in thinner coats. Obviously, this procedure means more coats are involved in applying 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.



PINHOLES/CRATERS DUE TO MOISTURE CONTAMINATION

DESCRIPTION

Pinholes due to moisture will occur in clusters and may rupture and form craters.

CAUSE

Moisture 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 the moisture and the coating material.

REPAIR

Grind affected areas smooth and apply additional coating to match adjacent areas.

PREVENTION

- If the deck is contaminated with moisture between coats from rain, dew, sprinklers, a/c equipment, etc. make sure the deck is completely dry before coating.
- Keep aggregate dry by storing in a covered area.
- Install aggregate wear coat in accordance with recommendations. Pinholes may develop if aggregate is installed at rates greater than recommended and can be a source of moisture contamination.
- Ambient temperature should be more than 5o above dew point. Refer to Dew Point Chart in the Waterproofing Application Manual for ambient temperature and relative humidity guidelines.



BLISTERING DUE TO WATER CONTAMINATION

DESCRIPTION

Blisters look like small to large unbroken/broken bubbles in the coating surface and are readily visible. They are typically randomly dispersed in the coated surface.

CAUSE

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

REPAIR

- Cutout and remove all blistered and wrinkled areas.
- Grind affected areas to sound coating.
- Allow to dry thoroughly.
- Reapply coating as need to bring system to specified thickness.

PREVENTION

- Do not apply coating if rain is imminent.
- Ambient temperature should be more than 5°C above dew point. Refer to Dew Point Chart in the Waterproofing Application Manual for ambient temperature and relative humidity guidelines.



BLISTERING DUE TO THICK COATING



DESCRIPTION

Blisters look like small to large unbroken bubbles in the coating surface and are visible to the naked eye. They are typically randomly dispersed in the coated surface.

CAUSE

Coating blisters can be the result of coating being applied at a rate greater than application instructions. They can appear as round or oblong blisters and depending on the state of cure, can feel spongy or uncured beneath the surface when examined.

REPAIR

Affected areas need to be completely removed down to cured coating or substrate. Reapply coating system per specifications and recommendations.

PREVENTION

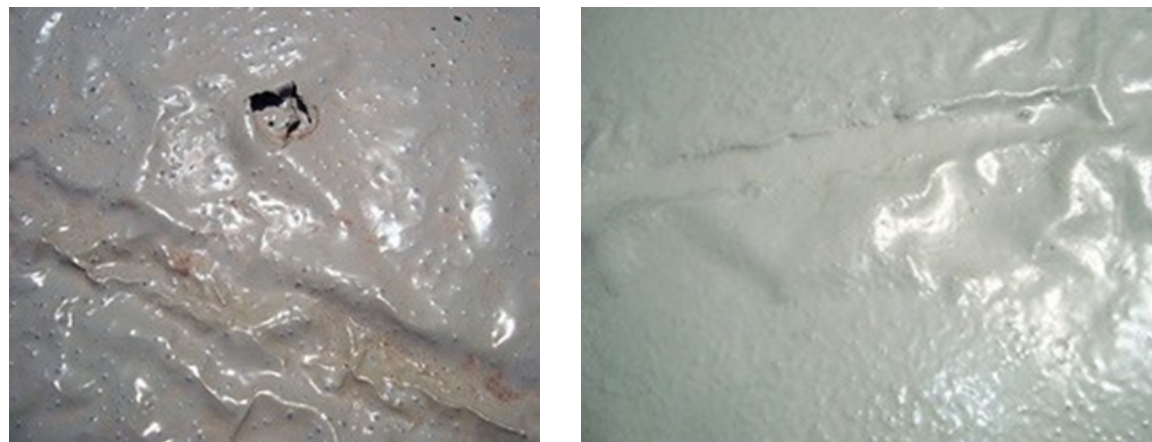
- During installation of coating, frequently check the wet film thickness by use of recommended mil gauges. Also, laying out the job prior to coating by gridding out the area will help to maintain proper and uniform coating thicknesses.
- During application, double roll to limit low spot areas where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



WRINKLING

DESCRIPTION

Coating looks wrinkled in places.
Multiple lines of parallel wrinkling may occur.



CAUSE

- Material applied over uncured or off-ratio coating causing stress on topcoat.
- Coating applied at a thickness that exceeds application instructions.

REPAIR

Remove coating in affected areas to cured coating or sound substrate. Apply coating as specified and per recommendations.

PREVENTION

- Ensure that coatings are completely cured prior to proceeding with the application of additional coats.
- Apply coatings at recommended coverage rates.
- Mix all materials thoroughly, following mix ratios printed on the bucket labels or on the product data sheet.



SLOW / NO CURING

DESCRIPTION

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

CAUSE

Photo on left illustrates typical blister. Center photo is the area beneath the removed blister, showing a pattern of uncured coating. Photo on the right shows topcoat applied over uncured base coat that was off ratio, in a semi-liquid state, causing tension and wrinkling in the topcoat.



REPAIR

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

PREVENTION

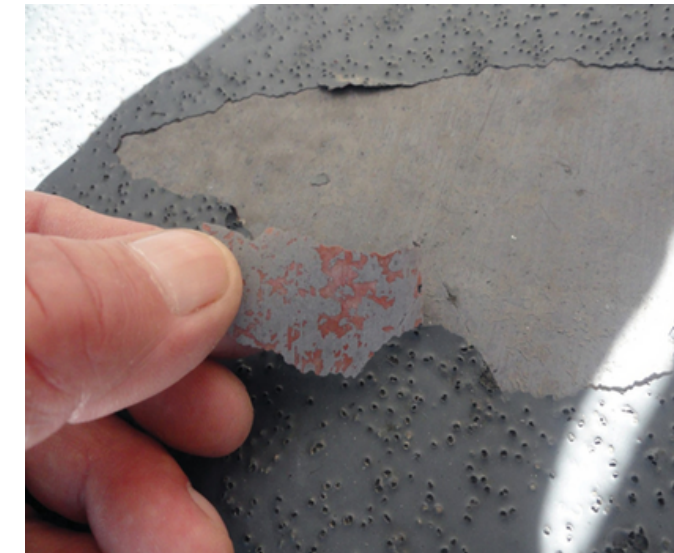
Ensure that the previous coats are on ratio and allow previous coats sufficient time to cure prior to applying additional coats.



PEELING / DELAMINATION

DESCRIPTION

Premature failure of coating can occur through delamination. Coating may peel off in places and show signs of laitance on backside.



CAUSE

Delamination may be caused by improper surface profile, moisture, contamination from dirt, dust, concrete residue etc., and incompatible materials. The picture on the left shows the use of an epoxy primer that was coated after the 24-hour window or exhibits the presence of 'blush' due to moisture or high humidity. The picture on the right demonstrates delamination due to insufficient surface preparation; surface texture does not meet the requirements for good bonding and was not clean and free from laitance.

REPAIR

Remove loosely bonded material, abrade, clean and re-apply material as specified and per Adcrete recommendations.

PREVENTION

- Base coat must be applied within 24 hours of primer application. If base coat application window is missed, clean surface and re-apply primer.
- If high humidity has caused the primer to 'blush', solvent wipe surface before proceeding with application of coatings.
- Properly prepare surface by mechanically abrading to remove surface contamination or concrete laitance. Surface should ideally be shot-blasted to the required surface texture (CSP3 to CSP4) to allow for optimal bonding.
- Perform field adhesion test prior to application of the coating.



WATER DAMAGE TO CURED COATING

DESCRIPTION

Surface has areas of dull coating in random patterns where water has meet uncured coating.



CAUSE

This is heavy rain or water damage that occurred to uncured coating.

REPAIR

Grind all affected areas to eliminate ridges in these cratered areas, clean and allow to completely dry. Re-apply coating as specified and in accordance with Adcrete recommendations. 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.

