



Procedures for a 2-Coat Application of the AC TECH 2170™ FC Moisture Reduction for Split-Slabs, Lightweight & High Moisture content and Other External/Outdoor Applications

GENERAL

The following procedures are recommended for any slab-on-grade, elevated, lightweight & lightweight structural concrete deck with either a split slab or high moisture content for any outside product application where a moisture reduction and alkalinity control primer are needed or required. Specifically, when applying the AC TECH 2170™ FC moisture Mitigation products as a primer for any subsequent fluid applied topping, roofing or coating system.

This is a two-coat system; the first coat is to be reduced/thinned with Acetone to penetrate the pores and capillaries of the concrete to penetrate the concrete cap for superior adhesion and to reduce and eliminate pinhole activity. This first coat is permeable and will allow moisture to penetrate, for moisture mitigation performance, a second coat is applied "neat" and is the actual moisture reduction and alkalinity control coat.

Critical to these procedures, especially if this is a roof or exposed project, will be the ambient weather conditions that may make this a daily challenge. The on-deck application team must make daily decisions depending on that days predicted ambient temperatures, humidity and general weather conditions as to proceed or not. These procedures are not to be ignored and must be adhered to for a warranty to be issued.

It would be noteworthy to document each day's application by listing the ambient conditions such as: Deck temperature, Ambient temperature; Humidity level; Dew point level; time of day and any other pertinent information prior to the application of the AC TECH 2170™ FC primer in a written log.

DO NOT STORE THE AC TECH 2170™ FC CONTAINERS OUTSIDE, store in a ventilated, cool/warm area, out of the weather and direct sunlight. Store away from any open flame or sources of ignition, do not let the material freeze.

Please contact the ACTECH Technical staff for any additional literature such as Spread-Rate Chart; Dew-Point Chart; product data sheet & SDS or more information is needed.

PROCEDURES

Concrete Preparation:

- Concrete must be stain-free and dust-free prior to application; it must be free of oils, grease, hydrocarbons, curing compounds, salts, hardeners, sealers, densifiers or any material or chemicals that may act as a bond-breaker.
- Mechanically remove all old coatings, epoxies, paint, asphaltic or bituminous material, and any other surface applied materials or sealers that may act as a bond- breaker to raw concrete using best industry methods.

NOTE: If the concrete is known or suspected to contain organic or inorganic contaminants such as oil, grease, fuels, general hydrocarbons or organics (blood, urine, etc.), a sample core may be requested prior to coatings application to ascertain the type, depth and amount of the contaminate.

NOTE: if the concrete has an overlayment, patch or cementitious self-leveling material present, the makeup and bond strength of the material must be tested prior to any coating's application.

Consult with the AC TECH Technical Team for guidance if the concrete substrate is suspected of contamination or has an unknown cementitious material applied prior to product application.

- Edge grind around walls, columns and any other obstruction present. The use of an appropriate Segmented diamond cup-grinder or best with proper dust collection to the same concrete surface profile (CSP) value as the main floor/deck area.
- Shot blast the deck to a minimum of an ICRI CSP¹ 3. Remove all fugitive shot and vacuum up all dust & debris after prep. If in the open, the wind may blow debris onto deck daily and/or during application – keep area clear of leaves and other wind-blown debris. Consult with the AC TECH Technical Team for any questions as to what profile to achieve for any specific application requirement.
- Grinding is acceptable if a CSP 3 can be achieved in a consistent profile with the proper tooling. If grinding, any impacted or lodged dust must be entirely removed prior to coating.
- On the selected area to be coated, always check ambient conditions before start; deck (concrete) temperature; ambient temperature, humidity, dew point and the weather conditions/forecast. Record these readings in a daily log.
- Confirm that the concrete is visibly dry-no liquid water or puddles, dust-free and stain-free after preparation.
- Perform the ASTM F3191 water drop test to confirm absorbency of the concrete (see ASTM F3191 Bulletin). If the water drop test fails, then further surface prep may be required. Proceed only when this test is passed in random locations around the deck to be coated. Consult with the AC TECH Technical Staff for guidance if the test fails even after additional prep.

1st Coat; Application of the AC TECH 2170™ FC mixed with Acetone:

NOTE: ALWAYS APPLY THE AC TECH 2170™ FC ONLY WHEN THE TEMPERATURE IS STEADY AND/OR FALLING AND NOT RISING, AND 5° ABOVE THE DEW POINT. Do not start until these ambient parameters are met.

- Watch the weather forecast, do not start application if there is any rain predicted within 7-hours of the 1st coat – acetone-mix of the AC TECH 2170™FC. Normal application temperatures are 50° F – 90° F; contact the ACTECH technical staff if lower or higher ambient temperatures are expected.
- Do not start application if the deck temperature is still rising. Do not start application if the dew point is within 5° F of the ambient temperature.
- Avoid application in direct sunlight, if possible. Wait until the sun is low later in the day for all outside applications where possible.

NOTE: Wear eye-protection against splashing, (especially with the acetone thinned material) nitrile gloves are recommended, and any other PPE as required or needed. Please watch out for any crew member that may have a sensitivity to epoxies and take necessary precautions; long sleeve shirts, heavier gloves, face mask, etc. If a crew member does exhibit signs of sensitivity, such as a rash, redness, trouble breathing, etc., remove them from the application area, consult the product SDS for additional health information.

¹**CSP:** (Concrete Surface Profile); ICRI, International Concrete Repair Institute: Guideline No.310.2R: Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, and Polymer Overlays.

Mixing:

1st Coat: For each 2.4-gallon unit of the AC TECH 2170™ FC, mix in 1-gallon of acetone:

1. Prior to mixing, confirm that prep and ambient conditions are correct to proceed.
2. Pour the "A" component into a 5-gallon bucket, the "A" component does not require any pre-mixing. Use a 400- rpm drill do not induce air into the mixture.
3. Add 1-gallon acetone to the "A" in the bucket, be careful not to splash-wear eye protection and proper gloves & PPE and start mixing. Use a Jiffy-type mixer.
4. Add the "B" component to bucket. Mix the 3 components for a **timed 3-minutes** moving the mixer around the bottom and sides to thoroughly mix the components and avoid any zoning.
5. Mix only what is going to be needed, avoid wasting materials. Do not mix "short-batches" if it can be avoided. Pot life for the acetone mixture is ~ 40 minutes @ ~75° F.
6. Pour entire contents of 5-gallon bucket onto the deck in a ribbon in the selected area to be coated, be careful of splashing as this thinned material is prone to splashing. Crew should wear spikes on shoes. Be very careful of thinned product splashing, if in an exposed and elevated area, take precautions to prevent the material from splashing over the side or onto adjacent areas. Floor mechanics to wear spikes and any PPE necessary or required.
7. Spread with a flat (no notches) squeegee and pull material tight in a thin coat only; DO NOT TRY to build any thickness with this coat- this must be a thin coat only, 1 – 2 mils; pull tight. Note if the material is pulled/soaked into the concrete and seems to "disappear", squeegee more material to the area to provide penetration and coverage, again, but do not allow the material to build up.
8. DO NOT LET THIS MATERIAL PUDDLE/POND; brush out any excess material in any cracks, bug holes and valleys in the concrete, as this thinned material in mass (puddles) may not cure or the solvent to flash-off overnight. Each roller-man should carry a brush to brush out any of these puddles of material, If the thinned material is not brushed out, the cure time may be delayed. The next day after application, check for any puddles that may have formed overnight and wipe out any uncured resin using a rag or paper towel, then allow to cure.
9. Back roll with 1/4" lint-free roller covers suitable for epoxies to work the material into the surface with no missed areas. Assure that all bug-holes and any cracks, joints and crevasse sidewalls are completely coated, but not filled. Make sure that the area is entirely covered with no missed areas.
10. Spread rate/consumption for the thinned material should be around ~200 square feet/gallon but the actual consumption/spread rate achieved may vary depending on the absorption, porosity and profile of the concrete surface after prep.
11. Allow a minimum of 12-hours for curing (overnight) for the acetone to flash off. The risk of solvent entrapment If the 1st coat is not cured, or the acetone flashed off. Do not apply the second coat until ambient conditions (as stated above) are Steady and/or Falling and NOT rising.
12. After the 12-hour cure time, make sure material has cured tack-free, if any un-cured puddles are noted and wiped out of any uncured material and let cure.

NOTE: The 1st, thin coat is permeable, and the second coat is necessary for the final moisture and alkalinity protection. The first coat is to seal the concrete against pinholes only and is too thin to have the moisture protection properties.

13. If there has been a heavy dew or rain overnight and during the cure phase, check next day for any amine blush on the surface. This will show as a whitish, hazy material with a greasy feeling, which must be completely wiped off prior to the 2nd coat application. This can usually

be removed with an Acetone or like solvent, if it is too hard to remove with the solvents, then sanding with a rotary swing-type sander with appropriate grit paper or screen should remove the blush. If this blush is not removed, it will act as a bond-breaker to the next coat.

14. Clean up all dust and debris from the above procedures if performed.
15. RECOAT Window: Between the 1st and 2nd coat of ACTECH 2170™™ FC only: 7 days with no further prep other than a solvent wipe or similar to remove any spills, dust and debris. If the 7-day window is passed, then it will be necessary to abrade the cured surface with sanding or a screen.

2nd Coat Procedures for the "neat" coat of the AC TECH 2170™ FC:

1. When satisfied that the first, thinned coat is cured and the acetone has flashed off and checked for any amine blush and that it has been removed, prepare to apply the 2nd coat of AC TECH 2170™ FC **'neat' with NO ACETONE.**
2. The second coat of the AC TECH 2170™ must be applied within 7-days of the first to achieve a chemical bond. If this is not possible, reschedule the project until this recoat-window can be met. Due to the absorption of the thinned material into the concrete substrate, sanding the surface may not produce adequate results for subsequent coat adhesion.
3. Prior to mixing, confirm that ambient conditions, dry-no rain, temps steady/falling, dew point, humidity are all correct to proceed.
4. Mix the two components pouring the "B" into the "A" can (or in a separate bucket if preferred). Mix for 3-timed minutes. It is not necessary to pre-mix the "A" component and there is no induction time. Mix only the material that you are to use immediately, do not mix ahead! Pot life for the mixture is short: ~15 – 20-minutes @ ~75° F; ambient temp conditional, hotter shorter; colder: longer.

NOTE: Material is exothermic (creates heat) when curing, and any left in the can may start to smoke. If this happens, add water or sand to the empty pail to stop the smoke and reaction. DO NOT INHALE ANY OF THE SMOKE FUMES IF THEY OCCUR.

5. Remove all pails from work area as soon as they are emptied. It is a good practice to add a bit of mixed material into the "B" pail swish around and pour back into the "A" pail so that any residual in both pails will harden prior to disposal in a dumpster. DO NOT THROW ANY LIQUID MATERIAL INTO ANY DUMPSTER OR TRASH RECEPTICAL. Refer to and obey all local, state and federal guidelines on the disposal of hazardous materials.

NOTE: DO NOT UPEND MIXED CANS ON THE DECK as this may cause un-reacted material from the sides/bottom of the can to get on deck and they will then show as "half-moons" of soft or uncured material.

6. Immediately pour mixed contents on the pre-coated area and spread with a (12 – 14 mil), notched or flat squeegee to obtain ~ 120/125 sq ft/gallon or a minimum of 12- mils (not less) wet film thickness.
7. Back roll with a 3/8" nap lint-free roller to even out coating, do not over-roll.
8. Allow to cure; cure time is temperature & humidity dependent: ~4 hours under normal or (50° – 90° F) temps and low humidity; slower if temps drop below 50° F and/or the humidity is high; faster if ambient temps are above 90° F and the humidity is low.
9. Upon cure, ~4 hours, and the surface is tack-free; the subsequent coating systems may be applied.
10. RECOAT Window: Check subsequent product for recoat and for compatibility with the ACTECH product. Generally, MMA's, PMMA's and like coatings must be applied within 48-hours. If this

window is passed the cured surface of the AC TECH™ 2170 must be abraded or another thin coat of the AC TECH 2170™ is applied. Check with the subsequent manufacturer's technical staff for compatibility and installation instructions.

11. Install the subsequent system per product instructions and literature. It is always best to install the next system as soon as possible- weather and scheduling permitting.
12. Full cure for the AC TECH 2170™ FC is in ~ 5 – 7 days from application, foot traffic only before full cure. Keep all heavy traffic, heavy or hard wheeled carts/pallet jacks off coating until full cure.

****Sand Broadcast:**

If the subsequent or final coating requires a sand broadcast for anchoring or adhesion, a third, thin coat will be needed to anchor the sand. DO NOT BROADCAST SAND INTO THE 2ND COAT; as this may/will make the coating permeable and compromise the performance of the ACTECH 2170™ FC's moisture mitigation properties.

The sand must be broadcast into an "anchor coat", which may be the ACTECH 2170™ FC or any compatible 100% solids epoxy applied over the 2nd coat. Make sure that the 2nd coat of the ACTECH 2170™ FC has been applied in the full 12-mil thickness over all high spots prior to the application of the sand-anchor coat.

NOTE: If any of the above deck temperatures or ambient conditions are not within the 50° – 90° F parameters described, DO NOT APPLY THE AC TECH 2170™ FC, wait until conditions improve or are within the above stated product application parameters. For any applications that occur outside of the normal temperatures (50° – 90° F), consult with the AC TECH Technical Staff prior to starting for any additional recommendations and/or advice.

NOTE: The thinned mixture of the AC TECH 2170™ FC and the Acetone when first applied may start to pin hole and bubble. This is normal and the holes will fill back in as the material penetrates the concrete and displaces the air; use a spike or spinney roller to pop any bubbles that do not recede, any holes should fill right back in.

If pinholes do not disappear or excessive pinholes appear and do not seem to fill back in (forming bubbles), recheck all the ambient conditions and deck temps. If the concrete temperature is still rising, wait until concrete surface conditions improve either being steady or falling before proceeding. If the temp and humidity are good, then halt the project and contact the ACTECH technical staff for guidance.

NOTE: Fisheyes: This effect is caused by a contaminate on the surface of the concrete. The epoxy is pushed or retracts from the center of the contaminate spot and forms a ridge or crater-like ring around the area. They can range in size from small (dime size) to large (inches across). The material built up or pushed out to the ring may be as much as 60 mils or more, where the center may have as little material coverage as 1 or 2 mils or none, which is not enough to withstand the moisture drive.

During prep performing the water-drop test may give advanced warning that there is a contaminate of some kind in the surface, which would lead to further prep and may avoid the fisheye issue altogether. As when noticed during application, it is usually too late to perform additional preparation procedures but there may be some help. In some cases, spraying the surface of the fisheye with Acetone in a spray bottle will break the surface tension and eliminate or decrease the size of the fisheye.

Another possible fix is using a "Fish-Eye Eliminator"², a surfactant, and would be added to the AC TECH 2170TM FC during mixing and functions to break the surface tension of the coating over the contaminate eliminating the fisheye.

If any of these "fixes" do not remediate the fisheyes or they are too numerous, then the project should be immediately halted, and testing be performed to identify the contaminant and how to effectively remediate it. This may entail taking a core sample from the concrete and sending it to an independent lab for analysis, (contact the AC TECH technical team for guidance on testing protocols). From the conclusions of the lab testing and analysis, AC TECH can make a recommendation to best deal with the issue. Contact the AC TECH Technical Team for guidance on taking cores, recommended testing protocols and independent testing labs.

Contact the ACTECH Technical staff for any additional information or details.

² Sherwin Williams: "Dimension Pro" Fish-Eye Eliminator; Product # DA 667 or 669