

PART 1 - GENERAL**1.1 SUMMARY**

A. This Section includes two-coat, 100% solids epoxy moisture management system formulated to suppress excessive moisture vapor in new or existing concrete prior to the installation of an ARDEX topping with sealer, or underlayment with flooring.

ARDEX MC™ ULTRA Two-Coat Moisture Control System – consisting of two components:
 (1.) ARDEX P-MC moisture control primer and (2.) ARDEX S-MC moisture control sealer.
 ARDEX ARDIFIX™ rigid polyurethane crack and joint repair.
 ARDEX K 55™ MICROTEC premium high flow self-leveling underlayment.

1.2 REFERENCES

- A. ASTM F2170 - Relative Humidity in Concrete Floor Slabs Using In Situ Probes.
- B. ASTM F710 - Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.
- C. ASTM C1583 - Standard Test Method for Tensile Strength of Concrete Surfaces and the Bond Strength or Tensile Strength of Concrete Repair and Overlay Materials by Direct Tension.
- D. ASTM E96 - Standard Test Methods for Water Vapor Transmission of Materials.

1.3 SUBMITTALS

- A. Test Results: Moisture Vapor Emission Test Data.
- B. Product Data: Submit manufacturer's product data and installation instructions for each material and product used. Include manufacturer's Material Safety Data Sheets.
- C. Qualification Data: For Installer.
- D. Manufacturer Pre-Installation Checklist.

1.4 QUALITY ASSURANCE

- A. Installation of the ARDEX product must be completed by a factory-trained applicator, such as an ARDEX LevelMaster® Elite or Choice Contractor, using mixing equipment and tools approved by the manufacturer. Please contact ARDEX Engineered Cements (724) 203-5000 for a list of recommended installers.
- B. Manufacturer Experience: Provide products of this section by companies which have successfully specialized in production of this type of work for not less than 5 years. Contact manufacturer representative prior to installation.

1.5 WARRANTY

- A. 15-Year ARDEX MC™ ULTRA Moisture Control Warranty.
 - 1. Applicator must file a pre-installation checklist with the manufacturer and receive written confirmation of the approval to proceed in order to obtain the extended 15-year ARDEX MC™ ULTRA Moisture Control Warranty.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver products in original packaging, labelled with product identification, manufacturer, batch number and shelf life.
- B. Store products in a dry area with temperature maintained between 50° and 85° F (10° and 29° and Protect from direct sunlight.
- C. Handle products in accordance with manufacturer's printed recommendations.

1.7 PROJECT CONDITIONS

- A. Do not install material below 50° F (10° C) surface and air temperatures. These temperatures must also be maintained during and for 48 hours after the installation of products included in this section.
- B. Install quickly if substrate is warm and follow warm weather instructions available from the ARDEX Technical Service Department.

PART 2 –PRODUCTS**2.1 TOPICAL MOISTURE MITIGATION SYSTEM**

- A. Two-Coat Moisture Control System for concrete to receive ARDEX toppings and underlayments.
 - 1. Acceptable Products:

- a. ARDEX MC™ ULTRA; Manufactured by ARDEX Engineered Cements: 400 Ardex Park Drive, Aliquippa, Pa 15001 USA 724-203-5000
2. Performance and Physical Properties: Meet or exceed the following values for material cured at 70° F+/-3°F (20° C+/-3°C) and 50% +/-5% relative humidity:
Application: Roller.
Material Requirements on CSP 3 Prepared Concrete:
Max 170 sq. ft. per mixed unit of ARDEX MC ULTRA PRIMER
Max 100 sq. ft. per mixed unit of ARDEX MC ULTRA SEALER
Permeability: 0.02 perms, ASTM E96
14 pH solution: No effect, ASTM D1308
Working Time: 30 minutes
Pot Lift: 30 minutes
VOC: 0g/l, calculated SCAQMD 1168

2.2 HYDRAULIC CEMENT UNDERLAYMENT

- A. Hydraulic Cement-based Self-Leveling Underlayment
 1. Acceptable Products:
 - a. ARDEX K 55®; Manufactured by ARDEX Engineered Cements: 400 Ardex Park Drive, Aliquippa, Pa 15001 USA, (724) 203-5000, www.ardex.com
 - i. Primer: ARDEX P 82™ Ultra Prime
 2. Performance and Physical Properties: Meet or exceed the following values for material cured at 70° F+/-3°F (20° C+/-3°C) and 50% +/-5% relative humidity:
Application: Barrel Mix or Pump
Flow Time: 10 minutes
Initial Set: Approx. 30 minutes
Final Set: Approx. 90 minutes
Compressive Strength: Minimum 4100 psi at 28 days, ASTM C109M.
Flexural Strength: 1000 psi at 28 days, ASTM C78.
VOC: 0 g/l, calculated SCAQMD 1168

2.3 WATER: Water shall be clean, potable, and sufficiently cool (not warmer than 70°F).

PART 3 – EXECUTION

3.1 PREPARATION

- A. Concrete Subfloors: Prepare substrate in accordance with manufacturer's instructions.
 1. Prior to proceeding please refer to ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring. All concrete subfloors must be sound, solid, clean, and free of all oil, grease, dirt, curing compounds and any substance that might act as a bond breaker before priming. Mechanically clean if necessary using shot blasting or other. Acid etching and the use of sweeping compounds and solvents are not acceptable.
 2. The concrete must have a minimum tensile strength of at least 200 psi when tested in accordance with ASTM C1583. The concrete surface can be damp, but must be free of standing water.
 3. Mechanical preparation of the surface is required to obtain a minimum ICRI concrete surface profile of 3 (CSP 3). This substrate preparation must be by mechanical means, such as shot blasting.
 4. Prior to beginning the installation, measure the relative humidity within the concrete (ASTM F2170). Alternatively, you can also measure the surface relative humidity in accordance with ASTM F2420. For these relative humidity methods, the RH shall not exceed 98%.
 5. If the concrete substrate is too uneven to provide a uniform film thickness of the ARDEX MC™ ULTRA PRIMER and MC™ ULTRA SEALER (typically CSP 6 or higher), the substrate can be pre-smoothed using ARDEX K 301™ Self-Leveling Exterior Concrete Topping or ARDEX MRP™ Moisture Resistant Patch.
- B. Joint Preparation

1. Dormant Cracks and Saw-Cut Joints: To achieve a continuous moisture barrier, ARDEX recommends the use of a two-part, low viscosity, rigid crack and joint filler such as ARDEX ARDIFIX™ to fill small, non-moving cracks and saw-cut joints in existing concrete substrates. Cracks greater than a hairline in width (1/32") and saw-cuts must be filled in strict accordance with the installation instructions provided by the ARDEX Technical Service Department. Once the dormant cracks and saw-cuts have been properly filled, broadcast sand to refusal and allow these areas to cure thoroughly prior to proceeding with the ARDEX MC™ ULTRA installation.

3.2 APPLICATION OF ARDEX MC™ ULTRA:

- A. Examine substrates and conditions under which materials will be installed. Do not proceed with installation until unsatisfactory conditions are corrected.
- B. Coordinate installation with adjacent work to ensure proper sequence of construction. Protect adjacent areas from contact due to mixing and handling of materials.
- C. Mixing: Comply with manufacturer's printed instructions and the following.
 1. Each individual unit of ARDEX MC™ ULTRA PRIMER AND ARDEX MC™ SEALER contains separate, premeasured quantities of the hardener (Part A) and the resin (Part B). The hardening agent (Part A) is added to the resin (Part B).
 2. After opening each container, stir the individual components thoroughly before blending. The hardening agent (Part B) is added to the resin (Part A). Pour all of the hardener into the resin portion and stir thoroughly for a minimum of 3 minutes using a low speed drill and an epoxy mixing paddle. Once mixed, pour some of the epoxy back into the hardener container, stir for 10 seconds, and then pour all of the contents back into the resin container. Mix for an additional 30 seconds before applying.
- D. Application: Comply with manufacturer's printed instructions and the following.
 1. Apply the first coat of freshly mixed ARDEX MC™ ULTRA PRIMER (yellow) to the prepared concrete surface in a uniform direction at an application rate of up to 170 sq. ft. per unit to achieve a coating thickness of 9 – 10 mils. Use a short-nap paint roller or notched squeegee for smoother surfaces, and a longer nap roller for more uneven substrates. ARDEX MC™ ULTRA PRIMER can also be applied with a paintbrush for hard to reach areas and in corners.
 2. While the first coat is still in a fresh state (maximum 30 minutes), broadcast an excess of fine sand that is less than 1/50 of an inch in gran size (98.5% passing sieve size #35 or #30) consistently over the entire area. Avoid standing or walking on the freshly applied sealer when broadcasting the sand. Allow this coat to dry for a minimum of 6 hours at 70°F before applying the sealer coat.
 3. Once an area has been completely covered with sand, the surface of the sand can be lightly walked on being careful not to expose the sealer at any time. Use about 1lb. of sand per square foot of area. Once the sand broadcasting process is complete, avoid all additional traffic over the surface for a minimum of 6 hours.

Note: When broadcasting the sand use a NIOSH approved dust mask in conformance with OSHA requirements regarding handling of sand.
 4. Working in a direction that is 90° angle to direction that the first coat was applied, apply the sealer coat of ARDEX MC™ ULTRA SEALER (green) at a coverage rate of 100 sq. ft. per unit (14 – 16 mils).
 5. While this second coat is still in a fresh state (maximum 30 minutes), broadcast an excess of fine sand that is less than 1/50 of an inch in grain size (98.5% passing sieve size #35 or #30) consistently over the entire area. Avoid standing or walking on the freshly applied sealer when broadcasting the sand.
 6. Once an area has been completely covered with sand, the surface of the sand can be walked on being careful not to expose the sealer at any time. Use about 1lb. of sand per square foot of area. Once the sanding process is complete, avoid all additional traffic over the surface for a minimum of 16 hours.

Note: When broadcasting the sand use a NIOSH approved dust mask in conformance with OSHA requirements regarding handling of sand.
 7. After 16 hours, broom sweep and vacuum the surface to remove all loose sand. Protect this surface from construction traffic and dirt and debris using Masonite or similar until the ARDEX or topping is installed.

8. The clean prepared surface of sand is the priming system for the ARDEX underlayment, such as ARDEX K 15® premium self-leveling concrete underlayment, or topping. No additional priming is required. Install the ARDEX underlayment or topping in accordance with printed instructions found in the corresponding technical brochure.
9. It is not necessary to re-test the substrate for moisture emissions prior to installing the coating or floor covering.

3.3 FIELD QUALITY CONTROL

- A. Where specified, field sampling of the Ardex products is to be done by taking an entire unopened bag of the product being installed to an independent testing facility to perform compressive strength testing in accordance with ASTM C 109/modified: air-cure only. There are no in situ test procedures for the evaluation of compressive strength.

3.4 PROTECTION

- A. Prior to the installation of the finish flooring, the surface of the underlayment should be protected from abuse by other trades by the use of plywood, Masonite or other suitable protection course.