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# **ARDEX MC™ ULTRA**

## **Two-Coat Moisture Control System For Concrete to Receive ARDEX Toppings and Underlayments**

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**Two-coat epoxy resin system consisting of Primer and Sealer with double sand broadcast**

**Solvent free, alkali resistant**

**Tenacious bond to substrate**

**Can be applied to damp concrete**

**Reduces vapor emissions in new or existing concrete to below maximum acceptable levels for floor coverings and coatings**

**For RH readings up to 100%**

**ASTM E96 perm rating  $\leq 0.10$**

**Especially suited for extremely demanding applications and in critical areas such as hospital ERs and surgical suites, institutions and heavy commercial environments**

**Suitable for interior use under all ARDEX toppings and underlayments, even where highly moisture sensitive flooring such as solid vinyl, rubber and linoleum sheeting will be installed**

**Provides secondary top-down waterproofing**

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# ARDEX MC™ ULTRA

## Two-Coat Moisture Control System For Concrete to Receive ARDEX Toppings and Underlayments

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### Description and Usage

The ARDEX MC™ ULTRA MOISTURE CONTROL SYSTEM is a two-coat, 100% solids epoxy moisture management system formulated to suppress excessive moisture vapor emissions in new or existing concrete prior to installing an ARDEX underlayment with flooring or an ARDEX topping with a sealer. It is especially suited to treat areas of new concrete in critical installations, such as health care and institutional applications where the construction schedule does not allow adequate drying of the concrete. ARDEX MC ULTRA is also recommended over existing concrete where the level of moisture emissions from the slab exceeds the maximum allowed by the manufacturer of the finished floor covering or sealer. There are no limits for the thickness of the topping or underlayment installed over ARDEX MC ULTRA.

The ARDEX MC ULTRA system is based on a reactive epoxy that produces a hard surface and tenaciously bonds to the substrate. There are two components: the ARDEX MC ULTRA PRIMER, which is yellow in color and is installed as the base coat, and the ARDEX MC ULTRA SEALER, which is green in color and serves as the sealer coat. Both coats receive a sand broadcast layer. Once cured, ARDEX MC ULTRA is able to reduce any level of moisture emissions to an acceptable level, even over new concrete that is only 7 days old.

Because of the double sand broadcast, this system also provides secondary top-down waterproofing.

The ARDEX MC ULTRA system serves as the base to receive ARDEX underlayments or toppings. No additional primer is required.

### Moisture Testing

Prior to beginning the installation, measure the relative humidity within the concrete in accordance with ASTM F2170. When installed in accordance with our written recommendations, ARDEX MC ULTRA is suitable for moisture levels up to 100% RH.

Please note that very high RH levels (above 98%) could be indicative of external water infiltration from inadequate drainage, leaks, broken pipes, etc. Verify that all external sources of water are controlled sufficiently prior to installation.

The surface of the concrete must be completely dry at the time the ARDEX MC ULTRA is installed. For RH levels above 98%, verify concrete surface dryness by mat testing in conformance with ASTM D4263. The test must be conducted for at least 6 hours, which is the time required for ARDEX MC ULTRA to be set sufficiently. To ensure that condensation does not form, it is extremely important to

check the surface temperature of the concrete just prior to installation to verify that this temperature is at least 5°F (3°C) higher than the dew point for the given temperature and humidity in the space and rising. For example, if the dew point temperature in the space is 60°F (16°C), the slab temperature must be 65°F (19°C) or higher and rising.

### Substrate Preparation

All concrete substrates must be structurally sound and solid, surface dry and thoroughly clean and free of oil, wax, grease, asphalt, paint, latex compounds, curing and sealing compounds and any contaminant that could act as a bond breaker. The concrete must have a minimum tensile strength of 200 psi (1.38 N/mm<sup>2</sup>) when tested in accordance with ASTM C1583.

Mechanical preparation of the surface is required to obtain a minimum ICRI concrete surface profile of 3 (CSP 3). Substrate preparation must be by mechanical means, such as shot blasting. Broom sweep and vacuum the prepared surface. Acid etching, solvents, sweeping compounds, adhesive removers and sanding are not acceptable means of cleaning the substrate.

If the concrete substrate is too uneven to provide a uniform film thickness of the ARDEX MC ULTRA PRIMER and 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. Please refer to the appropriate ARDEX technical brochure for installation instructions and necessary cure times.

### Recommended Tools

Epoxy mixing paddle, low speed drill, short-nap paint roller or notched squeegee (smoother surfaces), long-nap paint roller (more uneven surfaces) and a paintbrush.

### Dormant Cracks and Dormant Saw Cut Joints

To achieve a continuous moisture barrier, ARDEX recommends the use of a two-part, low viscosity, 100% solids, rigid crack and joint filler, such as ARDEX ARDIFIX™, to fill small, non-moving cracks and non-moving saw cuts in existing concrete substrates. Cracks greater than a hairline in width (1/32" / 0.79 mm) 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 dormant saw cuts have been filled properly, broadcast sand to refusal, and allow these areas to cure thoroughly prior to proceeding with the ARDEX MC ULTRA installation.

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## Moving Joints and Moving Cracks

All moving joints and moving cracks must be honored up through the ARDEX MC ULTRA, the ARDEX underlayment or topping and the floor covering or sealer by installing a fully flexible sealing compound designed specifically for use in moving joints, such as ARDEX ARDISEAL™ RAPID PLUS.

ARDEX cannot be responsible for issues arising from expansion and isolation joints, saw cuts or new or existing cracks that may develop, widen or become more narrow after the system has been installed.

For questions regarding the appropriateness of specific joint treatment compounds, please contact the ARDEX Technical Service Department at 888-512-7339.

## Mixing and Application

Each individual unit of ARDEX MC ULTRA comes in a 10 lb. (4.5 kg) unit containing separate, pre-measured quantities of hardener (Part B) and resin (Part A). 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 mix 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, mix for 10 seconds, and then pour all of the contents back into the resin container. Mix for an additional 30 seconds before applying.

The ARDEX MC ULTRA PRIMER (yellow) is applied first. Apply the freshly mixed primer to the prepared concrete surface in a uniform direction at a maximum application rate of 170 sq. ft. (15.8 sq. m) per unit (approx. 9 to 10 mils / 225 to 250 microns). Use a short-nap paint roller or notched squeegee with back-rolling for smoother surfaces, and a longer nap roller for more uneven substrates. To minimize the potential for pinhole formation, work the ARDEX MC ULTRA PRIMER into the surface with the roller to ensure maximum penetration. ARDEX MC ULTRA PRIMER can also be worked into the surface with a paintbrush for hard to reach areas and corners. While this coat is still in a fresh state (maximum 30 minutes), broadcast an excess of fine sand (less than 1/50" in grain size or 98.5% passing sieve size #30 or #35) consistently over the entire area. When broadcasting the sand, use a NIOSH- approved dust mask in conformance with OSHA requirements regarding the handling of sand. Do not stand or walk on the freshly applied epoxy when broadcasting the sand. Once an area has been covered completely with sand, the surface of the sand can be walked on, being careful not to expose the epoxy at any time. Use approximately 1 lb. of sand per sq. ft. of area. Once the sand broadcast is complete, avoid all general traffic over the surface for a minimum of 6 hours.

Proceed with the application of the ARDEX MC ULTRA SEALER after a minimum of 6 hours. Broom sweep and vacuum the surface to remove all loose sand. Apply the ARDEX MC ULTRA SEALER (green) top coat at a 90° angle to the ARDEX MC ULTRA PRIMER. Mix the ARDEX MC ULTRA SEALER as outlined above, and apply the freshly mixed material at a maximum application rate of 100 sq. ft. (9.3 sq. m) per unit (14 to 16 mils / 350 to 450 microns). While this coat is still in a fresh state (maximum 30 minutes), broadcast an excess of fine sand as outlined above. Once the sand broadcast is complete, avoid all general traffic over the surface for a minimum of 6 hours.

After 16 hours, broom sweep and vacuum the surface to remove all loose sand. The clean, prepared surface of the sand is the priming system for the ARDEX underlayment or topping. No additional priming is required. There is no limit to how long the sanded surface can remain open before installing the ARDEX underlayment or topping provided that the surface does not become contaminated. If the underlayment or topping will not be installed immediately, protect its surface from construction traffic, dirt and debris using Masonite or similar. Install the ARDEX underlayment or topping in accordance with the printed instructions found in the corresponding ARDEX technical brochure.

It is not necessary to re-test the substrate for moisture emissions prior to installing the floor covering.

## Notes

FOR PROFESSIONAL USE ONLY.

The installation of ARDEX MC ULTRA does not require calcium chloride testing of the concrete per ASTM F1869, nor does ASTM permit this test over the top of concrete that has been treated with a moisture remediation system. ARDEX MC ULTRA is warranted to reduce emissions to an acceptable level for the entire flooring system, regardless of the values obtained by this test.

ARDEX MC ULTRA PRIMER and SEALER each have a working time of approximately 30 minutes at 70°F (21°C). Lower temperatures will lengthen the working time, while higher temperatures will shorten it dramatically. Do not apply ARDEX MC ULTRA if the surface temperature is below 50°F (10°C).

Once the ARDEX MC ULTRA PRIMER and SEALER are mixed thoroughly, use them immediately and without interruption. Due to their high reactivity, these epoxies have a tendency toward intense heat buildup, especially when left in the original container. If this occurs, do not touch the container. Close the lid loosely and transport the container by the handle to a cool room or outdoors until it sets and cools.

## Precautions

Carefully read and follow all precautions and warnings on the product label. For complete safety information, please refer to the Material Safety Data Sheet (MSDS) available at [www.ardexamericas.com](http://www.ardexamericas.com).

## Technical Data According to ARDEX Quality Standards

All data based on 70°F (21°C) installation temperatures. Physical properties are typical values and not specifications.

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<b>Mixing Ratio:</b>	Add entire pre-measured contents of Part B (Hardener) into Part A (Resin).
<b>Coverage on CSP 3 Prepared Concrete:</b>	Max. 170 sq. ft. (15.8 sq. m) per mixed unit of ARDEX MC ULTRA PRIMER Max. 100 sq. ft. (9.3 sq. m) per mixed unit of ARDEX MC ULTRA SEALER (Will vary with surface profile)
<b>Permeability (ASTM E96):</b>	0.02 perms
<b>Effect of 14 pH solution (ASTM D1308):</b>	No effect
<b>Working Time:</b>	30 minutes
<b>Pot Life:</b>	30 minutes
<b>Walkable:</b>	6 hours after sand broadcast
<b>Install ARDEX MC ULTRA Sealer:</b>	Min. 6 hours after sand broadcast; no max. provided surface is protected.
<b>Install underlayment or topping:</b>	Min. 16 hours after ARDEX MC ULTRA SEALER is installed; no max. provided surface is protected
<b>VOC Content:</b>	0 g/L (calculated & reported, SCAQMD 1113)
<b>Packaging:</b>	Two 10 lb. (4.5 kg) units
<b>Storage:</b>	Store in a cool dry area. Do not expose containers to sun. Keep from freezing. Keep away from heat.
<b>Shelf Life:</b>	1 year, if unopened

## Warranty:

ARDEX Engineered Cements Standard Limited Warranty applies. Extended system warranty is available. Please note that training by the ARDEX Technical Service Department is required for extended warranty eligibility. Please contact the ARDEX Technical Service Department for details.

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