

Zera Shield™ 101MC

Epoxy-based Concrete Moisture Suppression System (MVSS)

DESCRIPTION

ZeraShield™ 101 MC is a high performance, 100% solids, two-part epoxy, and one-coat moisture vapour emission barrier system. It is designed to suppress excessive moisture in new or existing concrete slabs forming a solid film layer on the surface for moisture transmission reduction.

ZeraShield™ 101 MC may be used at different coverage rates depending on the level of moisture vapour emission control required and the age (number of curing days) of the concrete.

ZeraShield™ 101 MC will prevent or minimize damaged (either floor failure or mold growth) from moisture when it gets trapped under polymer flooring or other flooring materials such as hardwood, laminate, vinyl/composite flooring, carpet and tiles. It provides protection by penetrating deep into the concrete substrate while creating a solid film layer on the surface for moisture transmission reduction.

WHERE TO USE

ZeraShield™ 101 MC is 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 such as vinyl tiles and sheeting, rubber-backed carpet, hardwood and epoxy topcoats.

ZeraShield™ 101 MC may be used as a polymeric complete coating system without the need for the top coat application.

ZeraShield™ 101 MC is used under most standard commercial and residential floor coverings on internal substrates only. This includes: condominiums and homes, general office areas, small retail stores, office buildings, hotel rooms, lobbies, hallways, restaurants, cafeterias, convention centers, airports, shopping malls, grocery stores, department stores, hospitals, schools, universities, libraries, government buildings, warehouses, factories and food processing plants.

BENEFITS

- Offers the performance of a Class 1 Vapour Diffusion Retarder (perm rating <0.1 perms) at 16 mils.
- Low mix viscosity

- Fast re-coat time
- Outstanding adhesion to concrete
- It can be used up to 98% relative humidity
- 100% solids, contains no solvents
- Low odor, which makes it easy to use in occupied buildings

FINISH CHARACTERISTICS

Normally, this product does not change the overall appearance of the substrate. After the material is applied and allowed to dry for 24 hours, it will not be readily apparent that the application has occurred, except the concrete will be fortified and strengthened.

HANDLING PROPERTIES @ 23°C (74°F)

Mix Ratio, by volume	1.7 part A: 1 part B
by weight	2 part A: 1 part B
Viscosity (Mixed)	700 cps
Solids Content	100%
Mixed Weight (Density)	1.12 kg/litre (9.4 lb./US gal)
Pot Life (Mix)	15-20 mins
Coating must be poured onto the concrete immediately.	
Minimum Application Temperature	10°C (54°F)
Foot Traffic (re-coat) @ 23°C (74°F)	8-12 hours
Foot Traffic (re-coat) @ 10°C (54°F)	24 hours
Light Vehicular Traffic	24 hours
Colour	Amber Clear

DATA – Cured Film 7 days cured @ 23°C (74°F)/50%RH

Moisture Vapour Transmission Rate (ASTM 96-12)	
7 days concrete cure (one coats @ 16 mils each, or 2 coats @ 8 mils): 0.16 net perms.	
To achieve Class 1 Vapour Diffusion Retarder (perm rating<0.1 perms) : 16 mils on 28 days cured concrete, or 24 mils on 7 days cured concrete.	
Shore D-Hardness	84
Flexural Strength, MPa	111
E-modulus, MPa.....	3486
Tensile Strength, MPa.....	69
Compressive Strength, MPa.....	105
Tensile bond strength (7 & 28 days aged concrete cure)	>480 psi
No coating delamination nor concrete failure occurred	

SURFACE PREPARATION

New concrete must be cured for a minimum of 7 days before applying ZeraShield™ 101 MC. All concrete substrates must be structurally sound, solid and stable. The

substrate must be above 10°C (54°F) and must be dry or damp free of any visible water, all dirt, waxes, oil, grease, laitance and any foreign matter that may interfere with the bond of the coating to the substrate. The most effective way for the preparation of the floor is to use a shot-blasting technique or another means of mechanical abrasion to ensure a thorough and deep profile for adhesion. Acid etching is not a suitable means to use for ZeraShield™ 101 MC. Use anhydrous calcium chloride test or other approved tests to determine MVERs according to ASTM F1869. Perform tests of the slab's relative humidity according to ASTM F2170.

OFF-GASSING

The off-gassing is not a by-product of the MVSS (ZeraShield™ 101 MC), but of the displacement of air in the concrete. It depends on the density/PSI (compressive strength of the concrete); the lower the psi and/or water added to the concrete during pouring, the more off-gassing in the concrete. Because the ZeraShield™ 101 MC has low viscosity, it more effectively penetrates the concrete which displaces the air and may occasionally cause off-gassing.

APPLICATION

Note:

The MVSS product was not designed to go on top of a coated substrate. This MUST only be applied on bare concrete as it was designed. The idea behind this product is to provide a moisture barrier by adhering to the bare concrete substrate and penetrate into the pores. This is only to be used as a base coat. A top coat can then be applied over the MVSS to finish the floor. The concrete substrate must not contain any pre-treatment of another coating or chemical as this will lead to fish eyes and will not wet out well as a result. The concrete can only be prepared by sand blasting or shot blasting, as diamond grinding will also lead to the same issue.

Read all installation instructions thoroughly before installation.

- Combine both Part A and B of ZeraShield™ 101 MC and mix thoroughly for two minutes until uniform.
- Apply ZeraShield™ 101 MC to the concrete substrate immediately; pull it tight to the surface with a flat squeegee.
- Within 30 minutes of the first pass, reapply ZeraShield™ 101 MC (wet on wet) by spreading the material smoothly and evenly over the entire

floor using a 1/8" u-notched squeegee. Make sure to create an even, void-free coating over the entire surface. A total film thickness of 15 mils.

- ZeraShield™ 101 MC must be applied in a monolithic application. If pinholes or voids are observed, a second coat is required to eliminate the probability of a flooring failure. Lightly sand the pinholes and tightly reapply another coat of ZeraShield™ 101 MC at 5 mils film thickness over the area of concern (the sanded area).

FILM THICKNESS & COVERAGE:

In order to achieve a Class 1 Vapour Diffusion Retarder (perm rating <0.1 perms), it is recommended to use one or two coats of ZeraShield™ 101 MC at 15 mils total (125 sq. ft. per gallon) for 7 days cure concrete. Please use a gage meter to measure the wet film thickness during application.

Depending on the measured relative humidity of the concrete slab, ZeraShield™ 101 MC can be applied at the following coverages to control varying levels of moisture emissions:

1. Up to 10 lbs. per 1000 sq. ft. per 24 hours (130 sq. ft. per U.S. gal.)
2. Up to 15 lbs. per 1000 sq. ft. per 24 hours (100 sq. ft. per U.S. gal.)
3. Up to 25 lbs. per 1000 sq. ft. per 24 hours (70 sq. ft. per U.S. gal.)

LIMITATIONS

- For interior installations only.
- For the MVSS system to be effective, it must not have any pinholes.
- Do not install over substrates containing asbestos.
- Do not install unless the substrate and ambient temperatures are between 10 to 29°C (50 and 85°F).
- Do not apply to surfaces with visible moisture.
- Apply only to properly prepared sound and stable concrete substrates (at least 7 days old).
- Do not install over gymsun-based underlayment.
- Do not install repair mortars, screeds, self-leveling underlayment or patching compound beneath ZeraShield™ 101 MC.
- Do not install over wood underlayment.
- Do not use as a final wear surface; it must be covered with a flooring system. Do not install when the moisture vapor emission rate (MVER) exceeds 25 lbs. per 1,000 sq. ft. per 24 hours, when using the anhydrous calcium chloride test (ASTM F1-1869).
- In all cases, the surface temperature of the prepared concrete slab must be measured and deemed to be at least 2°C (5°F above) the dew point to avoid

condensation on the concrete surface as the **ZeraShield™ 101 MC** hardens.

Note: During installations on green concrete (7 days old dry), continued shrinkage in the substrate during cure may lead to the formation of cracks that will break **ZeraShield™ 101 MC** and breach the moisture barrier.

COVERAGE

Coverage rates depend on the application technique, substrate porosity, film thickness and required perms. For 10 mils thickness: 3.79L unit: each cover 160 sq.ft.; 10.7L unit: each cover 450 sq.ft.

PACKAGING

ZeraShield™ 101 MC comes in pre-measured, 3.79L (one U.S. gallon) and 10.7L (2.8 U.S. gal.) unit of resin and hardener together to facilitate mixing and prevent handling problems. Please do not break up the unit into a smaller mix. If you have to do so then you must use a scale to weigh 2 Part A to 1 Part B (by weight).

CLEAN UP

Clean all equipment and installation tools immediately with xylene.

SAFETY PRECAUTION

Consult the Material Safety Data Sheet (MSDS) for specific instructions.

STORAGE

Store in a heated warehouse.

SHELL LIFE

Two years from the date of manufacture if kept in original unopened containers under normal heated warehouse conditions.

WARRANTY

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