

Micro-Cem™ Ultra-Thin Overlay

Technical Data Sheet Micro-Cem FC



104 South 8th Ave. Marshalltown, IA 50158

1-800-987-6935 FAX: 641-753-6341

www.MARSHALLTOWN.com

FOR PROFESSIONAL USE ONLY. Read all applicable and current product information for your project: Technical Data Sheet (TDS), Color Chart, Installation Guide, Material Safety Data Sheet (MSDS).

1. Description: Micro-Cem™ Ultra-Thin Overlay is a two component system that blends a pre-packaged dry material with polymer to create a cementitious topping formulated for resurfacing structurally sound, non-moving interior concrete surfaces. The cured product creates an abrasion resistant surface. It is an ideal system for restoring worn or color blemished concrete, or correcting construction errors when a smooth hard trowel finish is desired. Micro-Cem™ develops a 28-day compressive strength of 5,800 psi (40.4 Mpa).

Micro-Cem™ is a precise blend of finely ground minerals, cement, and polymer, which allow for ultra-thin applications. Micro-Cem™ is pre-packaged, two component material that is mixed on the job. Application thickness is 1/16 inch (1.5mm) to a maximum of 3/16 inch (4.5mm).

Micro-Cem™ is packaged in cement gray and white. Micro-Cem™ may be used along with a Uni-Mix® Color Pack when an integrally colored look is desired. Please refer to the Uni-Mix® Integral Concrete Colorant color chart for available colors. Custom colors and colors selected from the Perma-Cast® Shake-On Color Hardener color chart can also be formulated with ample lead-time. Note: When Micro-Cem™ is mixed with a Uni-Mix® Color Pack, the cured color will not be an exact match to poured in place concrete colored using the same integral color or color hardener. Color packs are formulated for use with gray overlay unless otherwise noted. Always be sure to make a sample when using the gray or white with a color pack. Micro-Cem™ may be chemically stained after 72 hours of curing time by applying Perma-Cast® Sierra Stain™ or Elements™ Transparent Concrete Stain. Read the Perma-Cast® Sierra Stain™ and Elements™ Transparent Concrete Stain Technical Data

2. Limitations: Micro-Cem™ is formulated for use over thoroughly clean, structurally sound, and non-moving concrete surfaces. Micro-Cem™ is recommended for interior use only. Surface preparation is required. New concrete must be fully cured before applying the product. Maximum applied thickness for Micro-Cem™ is 3/16 inch (4.5mm). Do not install product if ambient and substrate temperatures are not between 50° F (10° C) and 85° F (30° C) or if temperatures are subject to falling out of this temperature range within 72 hours of application.

Micro-Cem™ should not be installed in areas subject to steel wheel traffic, strong chemicals, periodic water immersion, or hydrostatic pressure. The cured overlay surface should be sealed for ease of cleaning,

particularly on interior floors. Extend existing substrate control joints up through the overlay to minimize random cracks in the overlay. Random cracks in the existing concrete may transfer through the cured overlay even if they are repaired prior to application.

3. Cautions: Harmful if inhaled. This product contains silica (crystal line quartz) and Portland cement. Do not breathe dust. Prolonged exposure can result in Silicosis. Use with adequate ventilation. Portland cement may cause alkali burns. Irritating to eyes and skin. Wear a respirator, safety goggles, gloves, and other protective clothing during installation. Immediately after use, wash any area of exposed skin. If contact is made with the eyes, flush thoroughly with water, do not rub. Do not take internally. Keep out of reach of children and animals. Dispose of all residual materials according to local, state, and federal regulations. Slip resistant finishes and slip resistant additives must be utilized in order to minimize dry or wet slip. Read Micro-Cem™ Material Safety Data Sheet (MSDS) before installing product.

4. Packaging: Micro-Cem™ is available in 55-pound (24.94kg) bags. Uni-Mix® Color Pack weights vary from 0.5 - 1.25 pounds (0.23 - 0.57 kg), depending on the color selected. Micro-Cem™ Polymer is available in 5-gal units.

4.1. Shelf Life: 1 year in original, unopened containers, in dry storage at room temperature.

4.2. Freezable: Do not allow Micro-Cem™ Polymer to freeze. If material freezes do not use. Do not store in unlabeled containers. Do not reuse empty containers.

5. Coverage: The coverage rates of Micro-Cem™ is as follows: One 55-pound (24.94kg) bag of Micro-Cem™ combined with 5 quarts (4.73L) of Micro-Cem™ Polymer yields approximately: 96 SF at 1/16" thick (9m² at 1.5 mm thick) and 32 SF at 3/16" thick (3m² at 5 mm thick).

Coverage will vary depending on the depth of installation, substrate texture, and method of application and finishing.

6. Substrate Preparation: Remove all potential bond breakers such as grease, oil, paints, sealants, drywall taping compound, mastics and other contaminants on the surface by mechanical means only. Do not use chemical strippers to prepare the surface. New concrete must be fully cured and free from curing and sealing compounds, laitance, or dusting. Slick, hard-troweled floors require mechanical abrasion prior to

application. Random cracks in the substrate must be cleaned, chased and repaired prior to applying the primer to the surface.

Surface preparation may include high-pressure washing, grinding, sanding, shot blasting, or sandblasting, depending on the existing finish on the floor and the type of residue being removed. Refer to the International Concrete Repair Institute Guideline #03732 for information on achieving a Concrete Surface Profile (CSP) of #2-#4. Failure to remove all contamination that impedes the adhesion of Micro-Cem™ will cause the topping to delaminate. Detergents or soaps should not be used since they may leave a surface residue. Do not acid etch as it may weaken the surface. Surface must be free of any unsound concrete before installation.

7. Priming: Apply T1000™ Primer to the cleaned, sound and profiled substrate using a paint roller or bristle brush. Primer should be diluted 1:1 with water. Coverage is approximately 200 square feet per gallon (4.9 m²/L). Take care to protect adjacent surfaces from overspray or splash. Once the application of T1000™ Primer has dried to tack free, proceed with a second coat of straight primer-no dilution. After the second coat of primer has dried to tack free, installation may proceed. Micro-Cem™ may be applied up to 24 hours after application primer. Protect primed surface from moisture and contamination. After 24 hours, if the primed surface is exposed to moisture or becomes dirty, the primer must be reapplied. Read the T1000™ Primer Technical Data Sheet before installing product.

8. Mixing: Micro-Cem™ uses 5 quarts (4.73L) of Micro-Cem™ Polymer per 55-pound (24.94 kg) bag of Butterfield Color Micro-Cem™.

Prior to mixing, Micro-Cem™ powder and Micro-Cem™ Polymer material temperatures should be between 50° F (10° C) and 80° F (26.7° C).

Do not mix or modify with any other liquid or chemical. Measure the polymer accurately for each batch duration of the installation. Color and finished texture will vary if polymer is not consistently measured for each batch.

Always add Micro-Cem™ Polymer to the 5-gallon (20 L) mixing pail before adding dry materials. Never add Micro-Cem™ Polymer directly to the dry material, as lumping may occur. When integral color is required, slowly add the Butterfield Color Uni-Mix® Color Pack to the required polymer using a good quality 600 rpm drill and paddle capable of

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mixing a mortar type mix. Once the color pack and polymer are thoroughly mixed slowly add the Micro-Cem™ dry powder. Do not attempt to mix by hand and make sure to keep the mixing paddles submerged in the mix in order to prevent entrapped air. Continue to mix for a minimum of 3 minutes until a smooth, uniform, lump-free, and streak-free color has been achieved. If the mixture loses its plasticity, do not retemper or add previously mixed material to new batches. Do not mix more material than can be correctly applied within 20 - 30 minutes at 70° F (21° C). Keep the mixing pail and mixer free of material build up. Change or clean mixing pail frequently to avoid pouring hardened lumps onto the substrate.

9. Installation: Mark the location of all working joints in the concrete substrate in order to saw cut joints into the overlay exactly over those existing joints. The overlay joints must be full depth and as wide as the existing substrate joints. All repair and patching compounds must be fully cured before applying. Install freshly mixed Micro-Cem™ by gauge roller, trowel or light weight squeegee over a properly prepared concrete substrate that has been primed with T1000™ Primer. Maximum applied thickness for Micro-Cem™ is 3/16" (5mm). If greater thickness of application is required, Micro-Cem™ may be applied in lifts. When building thickness in lifts, allow material to dry for a minimum of 3-4 hours after placement at 70° F (21° C). Re-coat time varies with ambient and substrate temperatures and humidity. Apply another thin even coat of T1000™ Primer and allow primer to dry until tack free. Place additional layers in the same manner, before the underlying layer dries completely, for the best adhesion.

Do not prime until patching and repair compounds have cured completely. Do not apply T1000™ Primer over standing or visible moisture on the slab surface. When applying Micro-Cem™ always maintain a wet edge during application. Terminate pours at existing joint lines, walls or other fixed objects. If a pour is terminated in the center of the floor or at a doorway between rooms for example, delineate the stopping point with a taped line. Only use blue painter's tape. Pour and distribute Micro-Cem™ just overlapping the tape, but not completely covering the tape. Remove tape as soon as the overlay has achieved initial set and before it has dried. This will leave a straight cold joint for the start of the next pour. Once the tape is removed, be sure to re-prime the area that was under the tape.

9.1. Trowel Application: Once material is thoroughly mixed, immediately pour Micro-Cem™ from the mixing pail onto the concrete surface. A trowel, gauge rake, gauge roller or squeegee may be used in initial distribution of the Micro-Cem™. Hand trowels or long handled trowel can be used for final finishing. Keep tools free of build up by cleaning frequently with water before the Micro-Cem™ dries completely. Apply material at a consistent thickness to minimize random shrinkage cracking.

10. Curing: Micro-Cem™ is self-curing. A solvent based curing and sealing compound should not be used as a cure for the Micro-Cem™. Curing time varies with ambient and substrate temperatures and humidity. The surface can be walked on gently approximately 4 hours after placement at 70° F (21° C). Cure for a minimum of 72 hours before opening the surface to light traffic. A full 28-day cure is required before heavy traffic. Verify curing time with a mock-up.

Saw cutting of control joints directly over the existing control joints in the concrete substrate should be completed within 12 hours after installation once the surface has gained adequate strength, so as not to be damaged by the saw cutting process. Cool ambient and surface temperatures may delay sawing.

11. Chemical Staining: For natural appearing color variations, Micro-Cem™ can be colored with Perma-Cast® Sierra Stain™ or Elements™ Transparent Concrete Stain. The overlaid surface should be fully cured, clean, and dry before applying concrete stains. Do not utilize aggressive cleaning methods until Micro-Cem™ is thoroughly cured. Read the Perma-Cast® Sierra Stain™ or Elements™ Transparent Concrete Stain Technical Data Sheets before installing product. Allow material to cure for 72 hours prior to applying concrete stains.

12. Sealing: Clear Guard® H₂O Cure and Seal or Clear Guard® H₂O Wet Look should be applied after the surface has cured for a minimum of 24 hours at 70° F (21° C). Application of a solvent-based sealer can be used as a substitute, however a job site mock-up with the final sealer application after 72 hours of Micro-Cem™ dry time is recommended. Sealed surfaces may become slippery when wet. Sealed surfaces will require maintenance. Read the Clear Guard® H₂O Cure and Seal or Clear Guard® H₂O Wet Look Technical Data Sheets before installing product.

13. Repair: Damage to an existing Micro-Cem™ floor should be repaired with Micro-Cem™. Once the damaged area has been properly identified the deteriorated area should be cut and chipped to the minimum applied depth of 3/16 inch (4.5mm), use a suitable patching compound to repair the concrete, prior to the application of Micro-Cem™. As an alternative, Micro-Cem™ may be applied in multiple applications, not exceeding 3/16 inch (4.5mm) in a single application, and allowing adequate cure time between applications. When used for repairing existing Micro-Cem™ applied floors you must apply the T1000™ Primer prior to installation.

14. Quality Control: Cast a job site sample at least 21 days prior to the installation for approval of color and finish. Utilize all materials, tools and techniques from the actual job in the mock-up. Consistent batching, coloring, pouring, finishing, sealing, and preparation techniques, will ensure the uniformity of architectural concrete. Verify adequate wet and dry slip resistance. Discuss maintenance requirements. Site visits by Butterflied Color Inc. Personnel are for making technical recommendations only and not for supervising or providing quality control. Maintenance requirements should also be discussed.

WARNING: THIS PRODUCT CONTAINS SILICA (CRYSTALLINE QUARTZ) AND PORTLAND CEMENT. DO NOT BREATHE DUST. PROLONGED EXPOSURE CAN RESULT IN SILICOSIS. PORTLAND CEMENT MAY CAUSE ALKALI BURNS. USE WITH ADEQUATE VENTILATION. ALWAYS USE PROTECTIVE GLASSES, GLOVES AND DUST MASK (NIOSH/MSHA TC 21C APPROVED). IMMEDIATELY AFTER USE WASH ANY AREA OF EXPOSED SKIN. IF CONTACT IS MADE WITH EYES FLUSH THOROUGHLY WITH WATER, DO NOT RUB. IF INHALED, MOVE TO FRESH AIR. IF SYMPTOMS DEVELOP OR PERSIST, OR IF INGESTED, SEEK MEDICAL ATTENTION. READ MATERIAL SAFETY DATA SHEET BEFORE HANDLING OR USING. **KEEP OUT OF REACH OF CHILDREN. DO NOT TAKE INTERNALLY. DO NOT TAKE INTERNALLY. THE USE OF STEEL REINFORCEMENT ADEQUATE TO SUPPORT BOTH DEAD LOAD AND LIVE LOAD IS REQUIRED ON ANY PIECE, SHAPE, OR STRUCTURE THAT IS UNSUPPORTED OR CANTILEVERED OUT FROM THE EDGE OF A SUPPORTING STRUCTURE OR IS USED TO SUPPORT THE WEIGHT OF ANY PERSON OR PERSONS. LACK OF ADEQUATE REINFORCEMENT COULD CAUSE BODILY HARM OR DEATH IF A PIECE, SHAPE OR STRUCTURE SHOULD BREAK AND FALL.**

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