

SECTION 09781

NATURAL STONE, CERAMIC TILE, TERRAZZO, DECORATIVE CONCRETE, GROUT & MASONRY – SEALING, COLOR ENHANCEMENT, & ONGOING MAINTENANCE

Note to specifier: Use this section to specify the proper methods for sealing, color enhancement and ongoing maintenance for a variety of hard surfaces. Historically, you may have simply requested floor care maintenance manuals and warranties as a submittal requirement to be turned over to your client. Increasingly sophisticated clients require the floor you specified to look as beautiful as the sample, and be durable and maintenance friendly for years to come. The maintenance products a janitorial service selects could ultimately determine the aesthetics of the floor you designed, particularly on natural stones. Your involvement in the selection of advanced systems for sealing, stain protection and maintenance is critical to satisfying your client. Miracle Sealants would enjoy being a part of your successful project.

All natural stone, ceramic tile, terrazzo, concrete, grout and masonry surfaces benefit by having a natural look impregnator / penetrating sealer. Impregnators penetrate into the substrate creating a barrier resistant to water penetration, oil penetration, stains, decrease surface absorption, reduce wear, allow 100% vapor transmission, increase static coefficient of friction, without altering the natural look. Stone has many variables and because stone care is not an exact science, test every situation should to assure expected results.

This specification can be used as a stand-alone supplement cross-referenced by your hard surfaces specification sections or you may elect to cut and paste these articles into the appropriate specification section.

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Sealing, Color Enhancing and Finishing of Honed, Textured, Unpolished Natural and Cast Stones
- B. Sealing, Color Enhancing and Finishing of Polished Stone.
- C. Sealing, Color Enhancing and Finishing of Brick and Masonry Surfaces.
- D. Sealing, Color Enhancing and Finishing of Terre Cotta, Saltillo, Cataluna & Other Clay Type Pavers
- E. Sealing, Color Enhancing and Finishing of Quarry, Ceramic, Mosaic, & Porcelain Tile.
- F. Sealing, Color Enhancing and Finishing of Limestone.

1.02 RELATED SECTIONS

- A. 02515 Stone Pavers
- B. 04200 Unit Masonry
- C. 04400 Stone
- D. 07180 Water Repellents
- E. 09300 Tile
- F. 09450 Stone Facing
- G. 09600 Stone Flooring
- H. 09630 Unit Masonry Flooring
- I. 09790 Slip Resistant Finishes

1.03 REFERENCES

- A. TCA (Tile Council of America) – Handbook for Ceramic Tile Installation.
- B. Marble Institute of America handbook
- C. Limestone Institute Handbook
- D. Ceramic Tile Institute Stain Test (CTI-T-72)
- E. American National Standards Institute (ANSI Z 124.3 Para 5.2 Stain Resistance)
- F. American Society of Testing Methods ASTM C373 and ASTM C 501 Surface Water Absorption Tests and Tabor Abrasion
- G. American Society of Testing Methods ASTM C97 (modified) Surface Water Absorption
- H. American Society of Testing Methods ASTM E 96-92 Water Vapor Transmission
- I. American Society of Testing Methods ASTM C 1028-89 Static Coefficient of Friction (American Disabilities Act - Slip Resistance)

1.04 QUALITY ASSURANCE

- A. Conform to ANSI/TCA A137.1
- B. Conform to TCA Handbook for Ceramic Tile Installation.

1.05 DELIVERY, STORAGE AND HANDLING

- A. Handle and store all products in a manner as to avoid damage or contamination by water, moisture, freezing, excessive heat, and foreign matter.
- B. Best to store at temperatures between 50-90 degrees F. Protect water-based products from freezing.

1.06 MOCK-UPS AND SUITABILITY FOR USE

- A. It is important to test products for effectiveness and suitability for their intended use.
- B. It is mandatory to test color enhancers on the specific stones and surfaces to be treated.

1.07 TOLERANCES

- A. Polished marbles should achieve a gloss of 90 dynes minimum as measured by a Miracle Sealants Gloss meter.

1.08 ENVIRONMENTAL REQUIRMENTS

- A. Install solvent based penetrating sealers and cleaners in a well ventilated environment.
- B. Maintain environmental condition and protect work during installation. Comply with trade standards and manufacturer’s printed recommendations.
- C. Product MSDS sheets are available on line at www.miraclesealants.com
- D. Allow penetrating sealers to fully cure a minimum of 3 days.

PART 2 PRODUCTS

2.01 PENETRATING SEALERS, COLOR ENHANCERS, AND CLEANERS

- A. Manufactured by Miracle Sealants Company, 12318 Lower Azusa Road, Arcadia CA 91006-6872
PH: 626-443-6433, FX: 626-443-1435

 Note to Specifier: For a pre-installation meeting and jobsite service, call Miracle Sealants’ home office for contact information on your local Miracle Sealants technical representative. This will ensure continued excellent service of your project.

2.02 PERFORMANCE CRITERIA FOR PENETRATING SEALERS

 Note to Specifier: Miracle Sealants supplies independent laboratory performance test reports. Please request test reports for your application if your desire is to write a performance specification. Fill in the following data as is appropriate for your project.

- 1. Stain Test:
- 2. Static Coefficient of Friction Test:
- 3. Tabor Abrasion Test:
- 4. Freeze/Thaw Test:
- 5. Vapor Transmission:
- 6. Surface Absorption Test:

2.03 STAIN PROTECTION FOR NATURAL STONE, CERAMIC TILE, TERRAZZO, DECORATIVE CONCRETE, MASONRY, AND GROUT

- A. For medium dense and dense surfaces like polished marble, terrazzo, porcelain and ceramic tiles, use 511 Impregnator
- B. For porous surfaces like slate, flamed granite, honed limestone, and tumbled marble, use Porous Plus
- C. For concrete pavers, decorative stamped concrete, and masonry use 511 Impregnator
- D. For steel reinforced concrete use 511 Concrete Surface Treatment (CST) to protect against salt ion intrusion, and the rusting of the steel
- E. For Portland cement grout use Porous Plus

Note to Specifier: Specifier must determine the porosity of the surface to be treated in order to select the most suitable Miracle Sealants Penetrating Sealer for the application. By putting a few drops of water on the surface and observing how the water penetrates can help determine the porosity of the surface. If the water soaks in to the surface within approximately 15 minutes, it is porous. If the water sits on top of the surface with little absorption after 15 minutes, it is dense. Natural stone can vary considerably from quarries around the world. For example, most polished granites are dense, but some, like Shivikashi, are extremely porous.

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2.04 COLOR ENHANCEMENT (best used in conjunction with a Penetrating Sealer)

- A. Textured, Honed, Polished and Porous Stone Surfaces use 511 Seal & Enhance (also provides maximum stain protection) or Mira Matte (only provides color enhancement)
- B. For high gloss, wet look on slate use Mira Shine (interior use only)
- C. For maintaining / increasing shine on polished stone furniture use Mira Polish
- D. For re-coloring grout joints use Miracle Grout Colorant (refer to color card)

NOTE: For granite, marble, limestone (and most types of stone) and ceramic tile, the use of a floor finish is generally not recommended. High gloss floor finishes increase maintenance, show scratches and wear patterns, and are vapor impermeable.

2.05 ONGOING MAINTENANCE

Miracle Sealants provides a wide range of cleaning products that are safe for their recommended surfaces.

- A. For general cleaning of all natural stone and ceramic tile use Mira Clean #1, a concentrated neutral cleaner / degreaser.
- B. For honed calcium based stones (marble, limestone, travertine) and terrazzo, use Mira Soap, a stone soap that produces a natural patina or luster on the stone.
- C. For heavy duty, deep cleaning of porcelain and ceramic tile, use Porcelain & Ceramic Tile Cleaner.
- D. For deep cleaning marble, limestone, and travertine, use Liquid Poultice.
- E. For granite countertops and marble vanities, use Counter Kleen and Miracle Disinfectant.
- F. For concrete and masonry, use Pre-cast Concrete Cleaner or Grout & Concrete Film Remover to remove efflorescence, hard water deposits and other mineral stains.

PART 3 EXECUTION

3.01 PREPARATION OF SUBSTRATE

- A. Floor Surface to be dry and free of contaminants, including previously applied sealers, dirt, lime and hard water deposits, efflorescence, and rust.
- B. Remove existing coatings and waxes using Mira Strip or H2O Strip.
- C. Remove lime and hard water deposits, efflorescence, rust and other heavy dirt and grime using Grout and Concrete Film Remover. Not for acid sensitive materials including but not limited to marble and limestone. For acid sensitive surfaces use Liquid Poultice.
- D. Thoroughly rinse surface with clean water and allow to dry. If an acid cleaner like GCFR was used, rinse with Mira Clean #1 to completely neutralize its acid content.

3.02 INSTALLATION OF TILE, STONE OR CERAMIC

- A. After the tile installation, apply a Miracle Sealants Penetrating Sealer to the face of the tile to act as a grout release. This will facilitate the grouting process, and reduce the potential for grout pigment staining of the tile. This is mandatory for porous stones such as limestone, tumbled marble and slate.
- A. Keep penetrating sealer out of open joints.
- B. Allow the penetrating sealer to cure 12-24 hours before grouting.

3.03 GROUTING

- B. After grouting the tile, make a 2nd application of penetrating sealer over the entire surface to protect the grout joints from stains.
- C. Apply appropriate Miracle Sealants 511 Penetrating Sealer per grout manufacturer's printed instructions to wait before sealing (normally 24 hours). Mix and install grout materials to requirements of TCA Handbook, ANSI 108.10 and manufacturer's printed instructions.
- D. Force grout into joint to fill joint flush, leaving no voids.

- E. Promptly remove excess grout from tile surfaces with damp sponge or cloth and polish tile surface with a clean cloth to avoid heavy duty clean up.
- F. Allow grout to cure. Follow grout manufacturers’ recommendations regarding how long to wait before Penetrating Sealer can be applied to the grout (normally 24 hours).

3.04 CLEANING

- A. Clean tile surfaces and adjoining surfaces of any residue of setting adhesive or grout. Grout residue may be cleanable with clean sponges and clean water.
- B. Any excess, stubborn grout haze or residue must be removed using Miracle Sealants “GCFR”, diluted according to the manufacturer’s printed instructions. NOTE: For acid sensitive stones (marble, limestone), use Liquid Poulitice.

3.05 SEALING

- A. Apply Miracle Sealants 511 Penetrating Sealer appropriate to the surface back across the entire surface to include the grout joints. Use Mira Brush applicator, clean cloth, micro fiber pad or carpet bonnet to apply.
- B. Allow Penetrating Sealer to dwell a minimum of 3-5 minutes.
- C. Buff off excess Penetrating Sealer using a clean, dry cloth. Do not let excess Penetrating Sealer dry on the surface.

3.06 PROTECTION

- A. Protect finished installation from construction traffic until protection products and setting and grouting materials are fully cured.
- B. Do not permit traffic over finished floor surface. If traffic is necessary, protect the floor with a layer of ½ “ plywood for full length of traffic pattern; tape joints; use large rubber tired dollies for moving heavy items or equipment.
- C. Protect neighboring surfaces including but not limited to wood, carpet, metal, landscaping, and other non-masonry surfaces.

3.07 SCHEDULE

Material	Stain Resistance	Color Enhancement	Maintenance
Marble - Polished	511 Impregnator	Marble Conditioner, Mira Polish, Stone Polish(stone furniture and countertops only)	Mira Clean #1, Liquid Poulitice
Marble - Honed	511 Porous Plus	Mira Soap	Mira Soap, Mira Clean #1, Liquid Poulitice
Marble - Textured	511 Porous Plus, 511 H2O Plus	511 Seal & Enhance	Mira Clean #1, Liquid Poulitice
Granite - Polished	511 Impregnator, 511 Porous Plus	511 Seal & Enhance, Granite Brite, Stone Polish(stone furniture and countertops only)	Mira Clean #1
Granite - Honed	511 Porous Plus, 511 H2O Plus	511 Seal & Enhance	Mira Clean #1, GCFR
Granite - Textured	511 Porous Plus, 511 H2O Plus	511 Seal & Enhance	Mira Clean #1, GCFR
Limestone - Polished	511 Porous Plus	Stone Polish(stone furniture and countertops only)	Mira Clean #1, Liquid Poulitice,
Limestone - Honed	511 Porous Plus, 511 H2O Plus	Mira Soap	Mira Soap, Mira Clean #1, Liquid Poulitice
Limestone - Textured	511 Porous Plus, 511 H2O Plus	511 Seal & Enhance	Mira Clean #1, Liquid Poulitice
Travertine - Polished	511 Impregnator	Marble Conditioner, Mira Polish, Stone Polish(stone furniture and countertops only)	Mira Clean #1, Liquid Poulitice
Travertine - Honed, Unfilled	511 Impregnator, 511 H2O Plus	511 Seal & Enhance, Mira Soap	Mira Clean #1, Mira Soap, Liquid Poulitice

Slate	511 Porous Plus, 511 H2O Plus	511 Seal & Enhance	Mira Clean #1, GCFR
Sandstone	511 Porous Plus, 511 H2O Plus	511 Seal & Enhance	Mira Clean #1, Liquid Poulitice
Flagstone	511 Porous Plus, 511 H2O Plus	511 Seal & Enhance	Mira Clean #1, GCFR
Cantera	511 Porous Plus, 511 H2O Plus	Mira Shine	Mira Clean #1, Liquid Poulitice
Terre Cotta	511 Porous Plus, 511 H2O Plus	Mira Shine	Mira Clean #1, Liquid Poulitice
Mexican Saltillo Tile	511 Porous Plus, 511 H2O Plus	Mira Shine	Mira Clean #1, Liquid Poulitice
Ceramic Tile	511 Impregnator	Not Recommended	Tile & Grout Cleaner, Porcelain & Ceramic Tile Cleaner
Quarry Tile	511 Impregnator, 511 H2O Plus	Not Recommended	Tile & Grout Cleaner, Porcelain & Ceramic Tile Cleaner
Porcelain Tile	511 Impregnator	Not Recommended	Tile & Grout Cleaner, Porcelain & Ceramic Tile Cleaner
Brick	511 Impregnator, 511 Porous Plus, CST, 511 H2O Plus	Not Recommended	GCFR
Concrete	511 Impregnator, 511 Porous Plus, CST, 511 H2O Plus	511 Seal & Enhance	GCFR, Phosphoric Acid Cleaner
Cementitious Grout	511 Porous Plus, 511 Impregnator, Grout Sealer, 511 H2O Plus	Grout Color Kit	Tile & Grout Cleaner, GCFR
Epoxy Grout	511 Impregnator, Grout Sealer	Grout Color Kit	Epoxy Grout Film Remover

END OF SECTION