

1. Environment requirement

1. Install adhesives only in a ventilated environment.
2. Maintain environmental conditions and protect work during and after installation.
3. Maintain air temperature and structural base temperature at installation area at not less than 25°F (5°C), or more than 95°F (35°C) for (48) (24) hours before, during and for 7 days after installation.

2. Substrate preparation

Substrate must be sound, level, free from structural movement and clean of debris such as oil, paint sealers and curing compounds which may prevent the tile from proper bonding. Cement slabs must be adequately cured before installation.

3. Moisture content of concrete slabs

It is recommended to install tile only over concrete slabs that are free of hydrostatic pressure. Installation difficulties may occur when a slab demonstrates rising moisture conditions. Install tiles over only those slabs which are sufficiently cured and free from hydrostatic pressure/rising moisture conditions. To test for moisture transmission through a slab; a 2' x 2' polyethylene sheet may be laid on the substrate and taped around all four sides. It should be allowed to remain undisturbed for 48 hours. If after this time no condensation is visually present, the slab may be considered sufficiently dry to install tile. Moisture may also be tested with a Calcium Chloride Moisture Tester. The standard level of acceptable moisture for epoxy mortars is a reading that does not exceed 5%. This may also be used as a general guideline for other tile installations in order to establish moisture emissions through a slab.

» Installation methods

1. Types

There are four basic types of setting material considered for MIRATON:

- **Traditional laying method using mortar(Cement/Mud) : Not permitted for Miraton.**
A job site mixture of sand, cement and water. Cement mixes such as this always contain excess water; mechanics may add more for workability. Even after the cement has chemically cured, there will be excess water that must eventually evaporate. This excess water may exit the floor system through the grout lines, sometimes leading to discoloration of the grout. Also, the excess water in these systems can promote warping of the tile. This setting material has the weakest internal tensile/shear strength and slab-to-tile adhesive strength.
- **Cement based adhesives (Latex modified portland cement thinsets)**
Pre-packaged mixtures of sand, cement, powdered polymers, water and water emulsions of polymers(resins), water reducing and flow additives. The polymer resin is introduced to the system as either a powder mixed in with the sand and cement or as part of a water emulsion "milk"/latex. The purposes of the flow additives and the polymer is to improve adhesive strength, consume or displace water in the system so there will be no excess water after the cement cures and to improve handling. the term "latex" is commonly used to refer to either the "milky" liquid polymer emulsion used with some thinset systems and to refer to the powdered polymer included in other thinset systems. Latex is actually the sap derived from a natural rubber plant. Few, if any thinsets today include natural latex in the formulation. Latex has been replaced with synthetic polymers which are both more effective in strengthening the thinset and costing much less. The word "latex" is retained along with the more precise terminologies "polymer emulsion and powdered polymers". Latex/acrylic resin greatly increases the internal tensile/shear strength of the thinset and increases slab to tile adhesive strengths to 200+psi. Latex/Portland Cement Thinsets develop a good adhesive strength to tile/slab in 6-12 hours Water "available" for 6-12 hours. The ideal adhesives thickness must be 5~10mm.
- **Rapid set liquid latex / acrylic modified thinsets**
Contain chemical curing accelerators. Develops good adhesive strength in 3-6 hours. Water "available" for 3-6 hours only.
- ***Recommended adhesive : Mapei, Laticrete, Bostik etc. (please contact manufactueres)**
- **Epoxy**
Contains no water and generates a very high adhesive strength.

2. Selecting a setting materials

The selection of setting materials depends upon the following factors:

- **The floor / The job**
Available elevation and levelness of the slab
 - Adjust elevation and levelness with cement/concrete; thoroughly dry the concrete, then thinset
 - Adjust elevation and level with self leveling underlayments; then thinset - **Preferred method**
 - Adjust elevation and levelness while thinsetting tile
the time available before traffic
 - Standard thinset - 12-24 hours to accept traffic
 - Rapid set thinset - 3-6 hours to accept traffic
Substrate conditions, expected traffic, installation temperature
- **The tile**
 - Dimensional Stability, "Inherent warpage factor" of tile/size and thickness. Dimensional Stability refers to the tiles ability to resist curling or warping when exposed to the water in most setting materials. All materials, even glass, will absorb some water on its surface and as the surface absorbs water it expands. This expansion makes the wet side of the tile larger than the dry side and the tile will attempt to curve or warp in order to relieve the stress. Miraton tiles have very low water absorption and excellent dimensional stability., therefore they are very resistant to warping or curling. However, as the size becomes larger, 24"x 24"(600mm x 600mm) or larger, even Miraton will curl a little and the setting materials and methods must be selected accordingly.
 - Water Absorption/Desired Bond Strength Low absorption materials such as porcelains and Miraton require the use of Latex-Portland Cement modified thinsets to achieve proper adhesion to the tile.
 - All tiles should be "back buttered" to insure maximum coverage.

3. Grouting

The installation of the floor tiles without joint is to be avoided The width of joint between the tiles should be at least 1/8"~1/5" (3mm~5mm) and the width of expansion joint (minimum every 4X4M or 6X6M) filled with elastic jointing should be at least 2/5"(10mm).

4. Protection

1. Protect finished work against weather, freezing and immersion in water for at least 21 days after completion of the work.
2. Protect floors from foot traffic for at least 24 hours and general traffic for at least 72 hours after installation. Prohibit heavy traffic on floors for at least 7 days after installation. Special attention must be given to protecting textured material during installation and afterward. The installer should consider using a grout release on textured Miraton. Also, sealing the textured finish immediately after the grout is dry will greatly help to protect the textured surface. Even after sealing, it is best to protect the textured surface from vehicular traffic, especially fork trucks with appropriate cover during the construction period.

Materials should always be installed according to local codes, ordinances, trade practices and climatic conditions. Consult with the setting material manufacturer for each project. There are almost no restrictions on interior installations of Miraton materials.

However, until further testing is completed, it is NOT recommended that Miraton be installed on exterior surfaces.

1. Surface preparation

The surface must be free of coatings, oil, wax or anything that would prevent proper bonding.

2. Installation methods

Miraton tiles up to 400mmx400mm may be applied over plywood, gypsum board, "floated" walls or cementitious backer board. The following must be considered in the selection of the backer board/substrate for walls.

1. Whether the wall will be subjected to water, and
2. The weight of the wall tile : do not use gypsum board where the height of the tile application will result in weight which is greater than the shear strength of the paper facing of the gypsum board, usually more than 4 feet high. Installation materials include thinset or organic adhesive.

3. Protection

1. Protect finished work against weather, freezing and immersion in water for at least 21 days after completion of the work.
2. Protect walls from impact, vibration and hammering on adjacent walls for at least 14 days after installation.

4. Grouting

On walls, install Miraton tiles leaving a regular even spacing between tiles of at least 1/16"(1.5mm)(specify joint width if wider joints are desired) .
No butt joints shall be permitted.

4. Wall anchors System

Occasionally, 3/4"(20mm) material will be the selection of choice for a wall installation. Miraton 3/4"(20mm) large format panels can be "anchored" to the wall using any of the approved anchor systems available. Cutting slabs into 3/4" Miraton, as is done with natural marble and granite, creates an extremely strong anchor.

Starburst product are very resistant to chemical and scratches. Polished and Semi-Gloss finishes are very resistant to stains. Maintenance does not involve sealers or polishers. Therefore, the basic concept in maintaining these finishes is to focus on the effective removal of daily soil and spots. Honed finishes will require more aggressive scrubbing and detergents for effective maintenance especially in darker colors.

1. Daily cleaning

1. Dry mop/sweep/vacuum floor as appropriate to the floors finish to remove dust/dirt.
2. Spot clean with detergents or spot removers and hand scrub as needed.

2. Washing

Use an automatic scrubber/vac fitted with a 2" soft bristle nylon brush. This machines scrubs, rinses and wet vacs the floor in one pass. Use detergent/stripper solutions appropriate for the soil to be removed. OR Use a low speed (175 rpm) buffer with 2" soft nylon brush. Scrub floor with cleaning solution wet vac. Rinse with clean water and wet vac again. The most effective frequency for each of the above procedures is to be determined by the traffic and desired appearance standards for the floors.

3. Heavy duty cleaning

Periodically, it may be effective to give the floor a more aggressive cleaning using a heavy duty or stripper type cleaning solution. If possible, increase the soak time for the cleaning solution on the floor before scrubbing and removal. The deep cleaning is also very beneficial to the appearance of the grout. Periodic heavy duty cleaning can keep your Miraton floor looking as beautiful as when installed. Never use Methylene Chloride or cleaners containing any alkaline materials., either as a solvent or paint remover on Miraton as it will damage the surface in as little as five minutes.

4. Spot removal

The focus of spot removal is to find the most effective cleaner or solvent that will remove the spot.

Adhere material : Gum, Paint-nailpolish, Grease, Dried Raisins, Etc.

It is sometimes useful to start by scraping the spot material. A putty knife or razor may be used. NOTE : Miraton is much harder than the steel blade so excessive scrapping of a blade on the surface may abrade the blade and leave a gray mark on the surface. Such a mark can usually be removed with a green scrub pad. After removing the materials from the spot, treat the spot with the appropriate cleaner/solvent. For heavy material, it is sometimes very effective to apply the cleaner/solvent with a pad of paper towels to keep the spot wet with cleaner for 2-5 minutes before scrubbing and rinsing with additional solvent or rinse water.

Apparent Stains : Magic marker, coffee, makeup, food.

Apply selected cleaner/solvent by wiping, or where appropriate, by soaking with paper towel pads for 3-10 minutes. Scrubbing after soaking can sometimes be more effective. Rinse with water or solvent one or more times.

4. Products that should be avoided

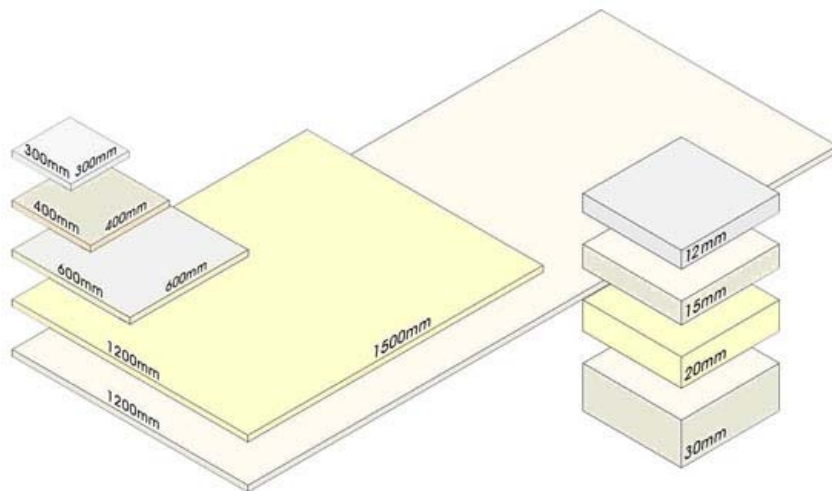
1. Cleaners that contain Pine Oil.

Without very thorough rinsing, these products can leave behind a residue of pine oil. The pine oil then attracts and holds dirt on the surface, eventually reducing the cleanliness of the surface and its appearance.

2. Highly aggressive cleaning agents such as oven/grill cleaners and dish washer polishing agents that have high alkaline/pH levels (pH 8.5 or higher)
3. Abrasive scrubs/cleaners containing either soft or hard abrasive particles. The abrasives will harm Miraton and if the surface is not completely rinsed, a powder residue will remain reducing the appearance of the surface, especially on dark colors.
4. Cleaners that contain Xylene, Toluene, Potassium Hydroxide or Caustic soda
5. Paint removers, Furniture strippers containing trichlorethane or methylene chloride.
6. Nail polish remover, bleach, bluing, permanent markers
7. Inks, Oil soaps

> product sizes & weight_

- Standard tile sizes
300mm x 300mm
400mm x 400mm
600mm x 300mm
600mm x 600mm
Special Sizes can be available on request.
- Nominal Thickness :
12mm
- Nominal Weight :
12mm : 6.02 lbs/ft² (29.4 kg/m²)



All tiles feature a 1mm beveled edge.

Miraton product are very resistant to chemical and scratches. Polished and Semi-Gloss finishes are very resistant to stains. Maintenance does not involve sealers or polishers. Therefore, the basic concept in maintaining these finishes is to focus on the effective removal of daily soil and spots. Honed finishes will require more aggressive scrubbing and detergents for effective maintenance especially in darker colors.

1. Storage

1. Miraton should be stored indoors prior to installation and covered with protective material.
2. Miraton should be not moistened and be stored in a ventilated environment without hydrostatic pressure/rising moisture condition.
3. Maintain air temperature and structural base temperature at storage area at not less than 25°F (5°C), or more than 95°F (35°C) before using.
4. The exposed surfaces, edges, and corners should also be protected from impact and scratching.
5. The exposed surfaces should be protected from direct sunlight and rain while in storage.

2. Transportation

Transportation conditions and methods are determined according to size and weight.

1. Consideration should be given to distance to destination, unloading point, road and/or job site conditions in determining pallet quantities and packaging.
2. While loading and unloading material careful attention must be made to prevent impact damage.

Important Notice to Purchaser:

All information herein is based on tests we believe to be reliable. However, the accuracy or completeness thereof cannot be guaranteed. Neither seller of manufacturer shall be liable for any loss or damage arising out of use of the product. Before using, user shall determine the suitability of the product for its intended use, and user assumes all risk and liability whatsoever in connection therewith. Due to printing and photographic limitations, printed representations of the product may vary from actual samples and production pieces.

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