
FLOORING/TILING MANUAL OF VICOSTONE® TILES

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I. Introduction of VICOSTONE® Quartz Surfaces

VICOSTONE® Quartz Surfaces are made up of approximately 93% pure natural quartz aggregates which are adhered with polymer resin with color powder, and have a hardness and flexural strength which is much higher than natural stones and other engineered stones. With a special and luxurious beauty, VICOSTONE® compound stones are widely used in interior applications such as kitchen countertops, bathroom vanities, wall paneling, and flooring, etc.

The phrase “VICOSTONE® Tiles” used in this document refers to engineered stone tile of VICOSTONE® for flooring application.

II. Flooring/Tiling Manual

1. Installation Tools

1.1. This list is a basic overview of tools needed to install VICOSTONE® Tiles:

- Safety Equipment including the following: First Aid Kit, Proper Safety Shoes, Safety Glasses, Dust Masks or Respirators, etc.



Dust Mask



First Aid Kit



Safety Glasses



Proper Safety Shoes

- Installation Tools



Mixer Drill



Notched Trowel



Rubber Mallet



Rubber Grout Float



Clean Container/Bucket



Tile Spacers



Damp/Dry Cloths

1.2 Although the tools listed are recommended for use in installing VICOSTONE® Tiles - this list is by no means absolute. There is a wide variety of equipment and tools available within the market. The best tools for the job will ultimately be determined by installers. When using any tools, always comply with the manufacturer's instructions, safety guidelines, and recommendations.

2. Storage and Handling

- 2.1. VICOSTONE® Tiles require care during storage and handling as do all floor covering products, their adhesives and all the ancillary items for floor preparation.
- 2.2. It is critical to store the materials in a dry, temperature-controlled interior environment. The temperature range should be no lower than 65°F (18°C) and no greater than 80°F (27°C) and the relative humidity should be controlled and maintained between 30 - 70% rH.
- 2.3. VICOSTONE® Tiles should be covered with protective material. Any exposed surface, edges and corners should be protected from impact, scratching, rain and direct sunlight during storage.
- 2.4. Always use proper handling equipment when moving the materials. Ensure that products and pallets are fully supported during transportation. Delays during the installation can be avoided by simply exercising care when handling and transporting these products.

3. Pre-installation Precautions

3.1. Environment requirement

- Ensure that the environment is ventilated and can be temperature-controlled before, during and after installation. If the environment is not temperature-controlled, the chances for a successful flooring installation can be radically reduced.
- Before installing VICOSTONE® Tiles, make sure that air temperature at installation area are at not less than 65°F (18°C) or more than 80°F (27°C).

3.2. Support Base Preparation

- **Cleaning:** The support base must be dry, clean and dust free before installation. Clean off any debris such as grease, paint sealers, pollutants and/or old adhesive which may prevent the product from proper binding. Any pre-existing concrete, tiles, ceramic or marble support base must be solid, free of cracks, well attached to the base, resistant to the expected loads and complete with adequate structural joints.
- **Leveling:** It is recommended that flatness of the support base should not have variations of more than 0.3cm (1/8"). If the support base is uneven, regularization of the flooring can be done using self-leveling mortar.
- **Consistency:** VICOSTONE® Tiles installation requires high level of the consistency of the support base. Ensure that a consistent support base is obtained before installation.

- **Moisture and pH Testing:** The moisture content of the support base must not exceed 2% using the Calcium Chloride Test Method (ASTM F 1869-04). If the moisture is above this value, suitable waterproofing of the surface will be necessary.

A pH test should also be conducted to ensure the pH level of the support base shall not be higher than 9.0.

- **Temperature:** A general rule, VICOSTONE® Tiles should not be installed when the temperature of the support base is lower than 50°F (10°C), or more than 95°F (35°C) because too low and high temperature will affect the curing time of the adhesive. If the surface of support base has high temperature due to direct sunlight, cooling by water or damp cloths is necessary before installation.

3.3. VICOSTONE® Tiles Preparation

- Tiles must be in good quality, free of cracks and dust before installation.
- Ensure that VICOSTONE® Tiles are not warping. To avoid warping, our products should be stored by laying down on a flat surface.

3.4. Testing Installation:

- The installers are recommended to carry out a testing installation on a small area of about 30m² as early as possible prior to the real installation. The testing installation should be done using the same tools and materials, following the same procedures as the real installation for the purpose of evaluating the tiles, adhesives, tools, installation method, etc. before installing the whole area.

4. Adhesives

- 4.1. VICOSTONE® Tiles are alkaline sensitive. Therefore, the test of the compatibility of adhesives and grout should be conducted before installation by applying a small amount of adhesives/grout on the surface of VICOSTONE® Tiles. After the adhesives/grout completely dries, scrape them from the surface and inspect whether the surface is chemically damaged.
- 4.2. For VICOSTONE® Tiles, the traditional laying using mortar (cement/mud) is not advised as it requires the use of large quantities of water. The high level of compactness and minimal water absorption of VICOSTONE® Tiles may lead to the tiles warping uncontrollably because the water could not escape from the screed or from the joints. Therefore, cement based adhesives should be used for a successful installation.
- 4.3. According to the European Standards on Adhesives (EN 12004), we recommend the use of C2F, class S1 adhesives (EN: 12004, EN: 12002) for VICOSTONE Tiles. For the installation of large-format tiles (bigger than 60x60cm (24"x24")) and in hot weather conditions, it is recommended to use a C2FTE, class S2 adhesive (EN: 12004, EN: 12002).

Regarding the material for grouting, we recommend the use of cement grout classified as CG2 (UNE EN 13888). There are different colors of cement grouts available in the market.

The Classifications of Tile Adhesives & Grouting Products are summarized as below:

Type of Adhesives	
Type C	Cementitious (Cement Based Adhesives)
Type D	Dispersion (Ready Mixed/Tubbed)
Type R	Resin (Epoxy)
Extra Characteristics	
1	Normal Adhesive
2	Improved Adhesive
F	Fast Setting
T	Thixotropy (Reduced Slip/Slip resistance)
E	Extended Open Time
G	Grout
S	Elasticity/Flexibility/Deformability S1 = Deformable (Flexible) S2 = Highly Deformable

4.4. The adhesive manufacturers have vast experience in the installation of the Quartz-Resin based Tiles. Accordingly, we strongly recommend that the installer should consult the relevant adhesive manufacturers and seek their advice to ascertain the correct product in the terms of the adhesive's characteristics prior to installation of VICOSTONE® Tiles.

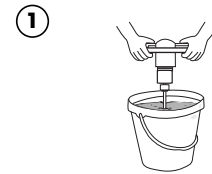
List of some adhesive & grout brands for installation of VICOSTONE® Tiles:

Adhesive Brands	Website
MAPEI	www.mapei.com
GRUPO PUMA	www.grupopuma.com
LATICRETE	www.laticrete.com
ARDEX	www.ardex.com

5. Installation

5.1. Tiles Laying

- **Step 1:** Mix the cement adhesive in a clean container/bucket to the consistency suggested by the manufacturer. The use of a mixer drill at a moderate speed is recommended to ensure the consistency of the adhesive. Remixing the adhesive or adding water for extended use are not recommended.



- **Step 2:** Using a notched trowel, spread the adhesive evenly to create a 1cm (2/5") thick layer on the support base. Check the tackiness of the adhesive layer on the support base by hand. If the adhesive smudge onto fingers, installation of tiles can be continued; if not the support base must be thoroughly cleansed off and a new adhesive must be re-spread on the support base.



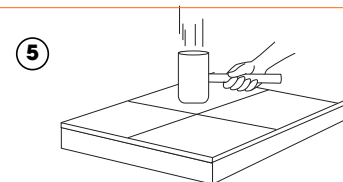
- **Step 3:** Comb the adhesive in one straight direction to ensure uniform application. Remove excess adhesive with the trowel and return it to the container/bucket.



- **Step 4:** Lay the tiles one after the other and add tile spacers between each tile as needed to ensure equal gaps. Tiles should be laid and can be adjusted within the curing time of adhesive as advised by adhesive manufacturer.



- **Step 5:** Tap the tiles with a rubber mallet to ensure good adhesion between the tile and the support base. Then allow the adhesive to dry for at least 24 hours or as recommended by the manufacturer before continuing.



NOTE:

- **Double-Bonding Method:** For good adhesion, the installation should be carried out using the double-bonding method, which means that the adhesive should be applied to the back of the tile (back – buttered) with a notched 0.6 - 0.8cm (1/4" - 1/3") .
- **Joint Width:** Tiles must always be laid with joints of at least 0.3cm (1/8") between each tile. When using larger-format tile, the joints must be increased adequately as follows:

Sizes	30x30cm (12x12")	60x60cm (24x24")	90x90cm (36x36")	120x120cm (48x48")
Minimum joint width	0.3cm (1/8")	0.4cm (1/6")	0.6cm (1/4")	0.8cm (1/3")

Tiles with size bigger than 120x120cm (48x48") are not recommended for use in flooring application.

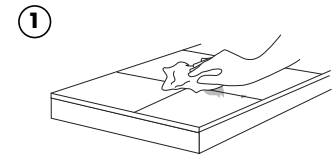
- **Expansion Joints:** Due to thermal expansion, leave an expansion joint of 0.8 - 1cm (1/3" - 1/25") every 15 - 20m² (160 - 215 ft²). Expansion joints should be carried out with elastic materials such as polyurethane/non-staining silicone sealants.

In addition, always leave a 0.5cm (1/5") perimeter gap for adhesive and expansion when laying tiles in a room.

5.2. Grouting

After laying tiles, allow the adhesive to dry for at least 24 hours or as recommended by the manufacturer before grouting.

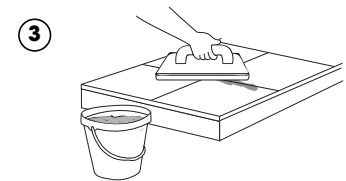
- **Step 1:** Remove the tile spacers between tiles and clean the joints thoroughly using a moist mop before grouting. Ensure that all the joints are not covered by the adhesive.



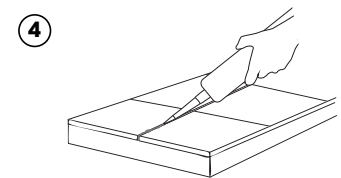
- **Step 2:** Mix the grout following the manufacturer's instructions. Make sure you use the proper water-to-mix ratio for a paste-like consistency.



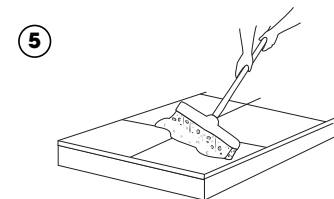
- **Step 3:** Apply the grout into the joints between the tiles using a rubber grout float, then use the rubber part of the float to press the grout into the joints and remove as much excess grout as possible. Do not apply the grout directly on the surface of the tiles.



- **Step 4:** Seal the expansion/movement joints and perimeter joint with elastic materials such as silicon sealant or those with suitable prefabricated structures to protect the floor against water penetration which may cause tiles to lift or allow mold to set in.



- **Step 5:** Allow the grout to dry for at least 15 minutes or as recommended by the manufacturer before cleaning the surface and wiping off any remaining grout.



NOTE:

- Depending on the type of grout, different maintenances are applied. For cement-base grout under hot, dry and windy condition, use damp cloths/sponge to maintain the joints when the grout starts to dry. When the grout dries completely, use clean and dry cloths to clean the surface and remove any excess grout.
- Please note that VICOSTONE® Tiles are not recommended for use in exterior applications or in weather conditions that are out of the ordinary limitations of the products. Protect the surface from sunlight during installation. Maintain the temperature and moisture of the jobsite for 24 hours before, during and 72 hours after installation by using air conditioners.
- Remove any sharp installation tools near the tiles during installation to avoid scratches on the surfaces.
- Protect the surface during installation to avoid stains, especially stubborn stains such as tea, coffee, mortar, etc. Clean the surface of the tiles during installation to avoid the adhesive curing on the surface.
- **Please consider that the use of VICOSTONE® Tiles as flooring is not covered under VICOSTONE®'s warranty.**

5.3. After Installation

- Protect the floor from foot traffic for at least 24 hours and general traffic for at least 72 hours after installation. Prohibit heavy traffic for at least 7 days after installation.
- Avoid flooding or washing the newly installed VICOSTONE® Tiles until the adhesive has fully cured for approximately 5 – 7 days, or longer depending on room temperature.
- Do not use alkaline detergents to clean the surface of VICOSTONE® Tiles.
- The test of the compatibility of detergents should be conducted before cleaning the surface of VICOSTONE® Tiles on one tile, then inspect whether it has any chemical reaction between VICOSTONE® Tiles and the detergents.

6. Maintenance

The use of VICOSTONE® Tiles as flooring will require more attention to keep their original look.

- 6.1. Daily Cleaning: Dust, grit and barrier materials from the floors should be removed on a regular daily basis by sweeping with a soft brush and when necessary by using machine. Sand can scratch a quartz based tile floor and the surface should be always kept free from dust, sand and soil.
- 6.2. Periodic Maintenance: VICOSTONE® Tiles only need to be regularly cleaned with warm water and a mild household detergent, using a standard mop to remove any deposit such as juices, wine, coffee, etc. from the surface. Make sure the floor is completely dry before walking on it. For more detailed maintenance and cleaning guideline of VICOSTONE® Quartz Surfaces, please refer to the **“Care and Maintenance”** document on our website at www.vicostone.com.

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