

Grout Troubleshooting Guide

Table of Contents

CEMENT GROUT SYMPTOMS

Grout discoloration.....	2-3
Efflorescence	4
Tile discoloration	5
Grout cracking	6
Grout with pinholes	7
Powdery grout in the joints.....	7

READY-TO-USE (RTU) GROUT SYMPTOMS

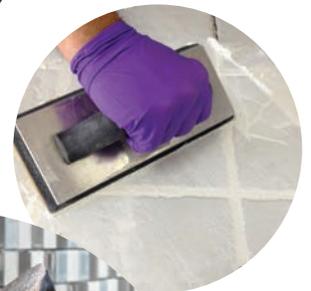
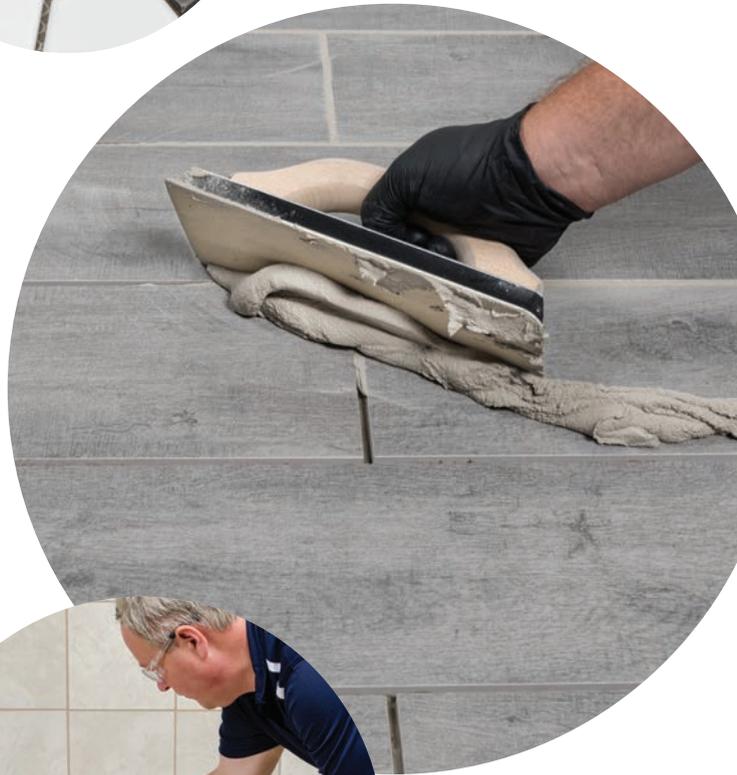
Grout discoloration.....	8-9
Efflorescence	10
Tile discoloration	10
Grout not curing.....	11
Grout with pinholes	12
Grout cracking	12

EPOXY GROUT SYMPTOMS

Grout discoloration.....	13-14
Efflorescence	14
Tile discoloration	15
Grout with pinholes	16
Grout cracking	17

OTHER

<i>UltraCare</i> [®] quick-reference guide	18-19
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Cement Grout Symptoms

Grout discoloration

A non-uniform, blotchy, shaded or dirty appearance of the grout joints



Sources	Solutions and Prevention
The mixing water and/or the wash water used to clean had a high content of iron or other minerals.	Use potable water, or use MAPEI's <i>UltraCare® Grout Maximizer</i> grout admixture (with <i>Keracolor® S Sanded Grout</i> and <i>U Unsanded Grout</i> only).
Sources include jobsite conditions – such as direct sun exposure and hot ambient/tile temperatures – and too much area being grouted at a time before initiating the cleanup process.	Protect tilework from direct sunlight during application, and always apply within the temperature ranges stated on the current Technical Data Sheet (TDS). Grout small areas of between 30 to 40 sq. ft. (2.79 to 3.72 m ²) at a time, so that cleaning can begin before the grout skins over and dries on the tile surface.
The grout color was not what was desired.	Use MAPEI's <i>UltraCare Grout Refresh™</i> to recolor and seal the joints at the same time.
Water was added to the grout powder instead of the powder being added to water.	Always add the grout powder to water for best results. This ensures proper dispersion of the grout and produces a more uniform consistency.
Too much water in the grout will cause pigment “washout,” performance issues and a lighter-than-desired color. Too little water can lead to performance issues like powdery grout and shading (variable shades in the grout color).	Closely follow the mixing ratios found on the product label and TDS.
The grout mix was not thoroughly dispersed.	Follow recommended product mixing times on the product label and TDS. These mixing times will vary depending upon the type of cement grout (sanded, unsanded, rapid-set).
Due to tile-spacing lugs left in the grout joints, variable depths of the joints caused shading.	Grout a test area to determine the impact of the tile-spacing lugs on the grout color. Either use <i>UltraCare Grout Release</i> , or wet the tile surface with clean water. Use <i>UltraCare Grout Refresh</i> to recolor and seal the joints at the same time.
The varying density and porosity of the tile and natural stone caused the grout to dry blotchy and to shade.	For natural stone, use one of MAPEI's <i>UltraCare</i> penetrating sealers. For glazed ceramic tile, check for uneven and inconsistent glaze on the tile edges. Use <i>UltraCare Grout Release</i> or pre-wet the tile surface and edges, being careful not to leave water pooled in the joint.
Grout joints were wiped excessively during the initial cleaning process.	On certain rough glazed or textured tile surfaces, there is a tendency to use excessive force to remove grout haze. Use <i>UltraCare Grout Release</i> to minimize the need for excessive wiping during cleaning.
The grout powder was not dry-blended before adding water or admixture.	Dry-blend the powder before adding water or admixture. This is especially important when you have more than one bag of product: The bags could potentially be from different production runs or manufacturing plants, and have a slight color variation between batches.
The cleanup window was missed, and the material hardened without being cleaned.	Do not grout more areas than you can handle on a jobsite, and frequently check grout hardness. Clean grout when no grout transfers to your finger. For cleanup time, careful attention should be paid to fast-setting grout.

Sources

Solutions and Prevention

Grout cleaning was completed too early or too late after floating the grout into the joints.

There are differences in recommended wash (cleaning) times, depending upon what cement grout is used – for example, some grouts are rapid-set. Typically, cleaning is allowed between 15 to 30 minutes after grouting, or when there is no longer a transfer of grout to your finger. Check the product label and/or Technical Data Sheet (TDS) to confirm the time before cleaning.

Grout-cleanup bucket water was not cleaned out frequently enough, leading to wash-water film and grout haze on the surface of the joints.

Use MAPEI's *UltraCare* Sulfamic Acid Crystals or *UltraCare* Cement Grout Haze Remover to remove surface grout haze on joints.

Too much water was used during the cleaning process.

Use a slightly moist sponge where water does not drip out. Follow recommended product application procedures on the product label and TDS.

A sealer was applied prematurely after grouting.

Wait a minimum of 48 hours after grouting before applying a sealer. Follow recommended product application procedures on the product label and TDS. Refer to the addendum "*UltraCare* quick-reference guide" that is at the end of this document for sealer recommendations.

The grout's shelf life expired.

Reference the product shelf life on the TDS. Dispose of the grout if the shelf life has expired.

The tile-setting material was not properly cured before grouting.

Ensure that the tile-setting material is fully cured before grouting.

There was excessive tile-setting material in the grout joints.

Remove dried residue from the grout joints, ensuring that at least 2/3 of the joint depth is left available for grouting.

There were inconsistent grout joint depths and gap widths.

Use tile spacers to ensure proper color/appearance consistency.

Variable glaze on the tile edges caused the grout to dry/cure at different times and lead to shading.

Use tile that has a uniform glaze coat on the edges. Use *UltraCare Grout Refresh* to recolor and seal the joints at the same time.

The concrete slab was not fully cured or had moisture-vapor issues.

Test the concrete's moisture levels with a calcium chloride test, or a relative humidity or moisture meter. MAPEI moisture-reduction-barrier products can also be used.

Grouting was done by different installers and under different environmental conditions.

When possible, use the same installer or group of installers and follow the same procedures. In addition, try to maintain consistent environmental conditions.

Different batch codes of grout were used when more than one bag was required.

Check the batch codes of the grout bags. Select batch codes that are the same whenever possible – this will minimize the potential for bag-to-bag color variation. Dry-blend bags of different lot numbers before adding water or admixtures to ensure uniformity.

Routine maintenance cleaning of the grout was performed too early after grouting.

Wait 72 hours before beginning routine maintenance cleaning of the grout.

The color of the grout became bleached out (washed out) some time after installation.

All MAPEI cement grouts are rated for both exterior and interior installations. As a result, bleached or washed-out grout is not due to UV exposure. Check for harsh chemicals (such as highly acidic cleaners) or other contaminants that could have caused this discoloration. If the grout is blotchy and uneven in color, use *UltraCare Grout Refresh* to recolor and seal the joints at the same time. If the color is uniform, use *UltraCare* Enhancing Plus Stone Sealer to restore color and seal the joints at the same time.

There are too many cleaning steps for grout, which can result in excessive water on certain portions of grout joints, especially when grouting over textured surface tile.

Avoid repeated cleaning and allow grout residue to dry. Then, remove grout residue by buffing with a dry cloth or towel after grout residue has dried.

Cement Grout Symptoms

Efflorescence

A white, powdery substance (calcium salts) in the grout joints



Sources	Solutions and Prevention
Water used in mixing and cleaning had a high content of iron and other minerals.	Use potable water, or use MAPEI's <i>UltraCare® Grout Maximizer</i> grout admixture (with <i>Keracolor® S Sanded Grout</i> and <i>U Unsanded Grout</i> only). Allow salts to naturally cure and brush off the surface as necessary. For acid-resistant tile or stone, use <i>UltraCare Sulfamic Acid Crystals</i> or <i>UltraCare Acidic Tile & Grout Cleaner</i> when time constraints are a factor.
Grout joints were wiped excessively during the initial cleaning process.	On certain rough glazed or textured tile surfaces, there is a tendency to use excessive force to remove grout haze. Use <i>UltraCare Grout Release</i> to minimize the need for excessive wiping during cleaning.
Too much water or admixture was used to mix the grout.	Follow the recommended product mixing procedures on the product label and Technical Data Sheet (TDS).
Too much water was used during the cleaning process.	Use a slightly moist sponge where water does not drip out. Follow recommended product application procedures on the product label and TDS.
Extreme temperature and humidity conditions occurred during installation.	Grout installations should be completed in temperatures between 50°F and 95°F (10°C and 35°C).
The tile-setting material was not properly cured before grouting.	Before grouting, ensure that tile-setting materials are fully cured and that grout areas are clean and dry.
A moisture source was present in the existing underlying surface or surrounding area. Examples of moisture sources can include leaky plumbing, rain and damaged subfloors that allow moisture to enter.	Utilize MAPEI's waterproofing or moisture-control products, and/or MAPEI's rapid-setting products to set and grout (e.g., <i>Keraflex® RS</i> , <i>Ultraflex® RS</i> , <i>Ultracolor® Plus Max</i> and <i>Ultracolor Plus FA</i>), in order to minimize the possibility for efflorescence and increase the opportunity to have consistent color.
The concrete slab was not cured or had moisture-vapor issues.	Avoid grouting on less than fully cured substrates. Test the moisture levels with a calcium chloride test, or a relative humidity or moisture meter. MAPEI's moisture-reduction barriers can also be used.
More water or admixture was added to the grout in order to prolong working time.	Do not add more than the recommended amount of water or admixture, according to the product label instructions and/or TDS.
Grout was prematurely exposed to excessive amounts of water. For exterior installations, this is a problem given that weather is unpredictable. For pool-grouting installations, the premature addition of water will compromise the grout and lead to efflorescence and other performance issues.	Exterior grout installations should be covered during inclement weather for the first seven days after grouting. Follow the product label instructions and TDS regarding the time to cover or expose to water (such as for pools), as it can vary with different cement grouts.
There is no vapor barrier underneath the slab.	Clean with <i>UltraCare Sulfamic Acid Crystals</i> or <i>UltraCare Acidic Tile & Grout Cleaner</i> .
The grout was improperly cured by covering it with a polyethylene sheet.	Cure the cement grout with Kraft paper.

Cement Grout Symptoms

Tile discoloration

A non-uniform haze, film, shaded or dirty appearance on the tile surface



Sources

Grout haze remained on the surface of the tile.

Grout haze was left on the tile surface due to grouting being performed without wetting down the tiles first.

Water used in mixing and cleaning had a high content of iron and other minerals.

Sources include jobsite conditions – such as direct sun exposure and hot ambient/tile temperatures – and too much area being grouted at a time before initiating the cleanup process.

Grout was trapped in the pits of tumbled or distressed travertine, or other pitted tiles.

Solutions and Prevention

Use *UltraCare*® Abrasive Surface Cleaner for thin grout haze or residues. For heavier haze or residue on acid-resistant tile or stone, use *UltraCare* Cement Grout Haze Remover or *UltraCare* Sulfamic Acid Crystals. Refer to the addendum “*UltraCare* quick-reference guide” that is at the end of this document.

Tile should be moistened to minimize grout haze. Use *UltraCare* Abrasive Surface Cleaner for thin grout haze or residues. For heavier haze or residue on acid-resistant tile or stone, use *UltraCare* Cement Grout Haze Remover or *UltraCare* Sulfamic Acid Crystals. Refer to the addendum “*UltraCare* quick-reference guide” that is at the end of this document.

Use potable water, or use MAPEI’s *UltraCare Grout Maximizer* grout admixture. Use *UltraCare* Sulfamic Acid Crystals or *UltraCare* Acidic Tile & Grout Cleaner to remove haze or residue off of acid-resistant tile or stone.

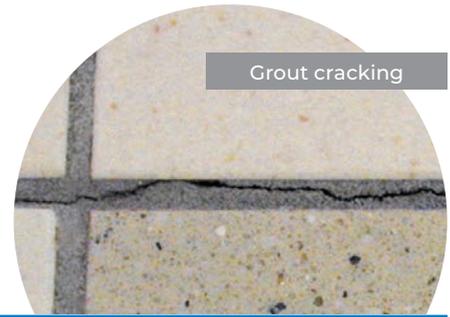
Protect tilework from direct sunlight during application, and always apply within the temperature ranges stated on the current Technical Data Sheet (TDS). Grout small areas of between 30 to 40 sq. ft. (2.79 to 3.72 m²) at a time, so that cleaning can begin before the grout skins over and dries on the tile surface.

Use *UltraCare* Grout Release before grouting. For severely pitted tile, keep the grout out of the pits by packing the joints only and avoiding the pitted areas on the tile surface. Optionally, the pitted areas can be filled first with MAPEI’s *Keracolor*® U *Unsanded Grout*.

Cement Grout Symptoms

Grout cracking

A separation or slight opening in a grout joint, usually located between the grout joint edge and the tile edge



Sources	Solutions and Prevention
The tile material is highly absorptive.	Highly absorptive surfaces require dampening the tile with water before grouting. A sealer could also be applied before grouting (when the tile is dry) to help release grout from the surface, especially when using additives such as <i>UltraCare® Grout Maximizer</i> or rapid-setting grouts such as <i>Ultracolor® Plus FA</i> . Use a suitable <i>UltraCare</i> sealer to pre-seal tile before grouting. Refer to the addendum “ <i>UltraCare</i> quick-reference guide” that is at the end of this document for sealer recommendations.
The wrong grout was used for the installation.	Select the correct grout for the job. For instance, do not use an unsanded grout in joint widths larger than 1/8" (3 mm).
Grout was installed before the tile-setting materials had fully cured.	Ensure that the tile-setting material is fully cured before starting to grout.
Tile spacers were left in the grout joints.	Remove all tile spacers before grouting.
Improper preparation of the grout occurred, such as too much/little water used, incomplete mixing or insufficient slaking.	Follow the product label instructions and Technical Data Sheet (TDS).
Temperature, humidity and wind can affect the way that grout cures. If grout cures improperly, cracks, pinholes, powdery grout or shading may develop.	Follow the product label instructions and TDS.
Grout was installed in movement joints and changes of plane.	Use a MAPEI caulk in these areas.
There was subfloor deflection (movement).	Use a MAPEI caulk in these areas. Ensure that the subfloor follows Tile Council of North America (TCNA) guidelines for determination of maximum allowable deflection.
Expansion or movement joints were not installed to allow for proper expansion/contraction.	Do not install tile over existing expansion joints. Use an appropriate MAPEI caulk or sealant for those expansion joints.
Movement is occurring from loose or poorly bonded tile.	Bond the tile and regrout the area.

Cement Grout Symptoms

Grout with pinholes

Very small holes – typically the size of a pinhead or less – that appear in the grout joints



Sources	Solutions and Prevention
Grout joints are less than full.	Ensure that the joints are packed well and follow the installation steps found on the product label and/or Technical Data Sheet (TDS). Use MAPEI's <i>UltraCare® Grout Refresh™</i> to fill and seal the joints at the same time to cover the pinholes.
The grout mix was too wet.	Use the correct liquid-to-powder ratio as recommended on the product label and TDS. Use MAPEI's <i>UltraCare Grout Refresh</i> to fill the pinholes and seal the joints at the same time.
High-speed mixing trapped air in the grout mix, or the grout was mixed for too long.	Use a drill mixer at a speed of no more than 300 rpm for the recommended time listed on the product label or TDS.
Grout was not correctly forced into the joints.	Use a medium- to hard-rubber float at a 45-degree angle to the tile surface. Excessive grout should be removed using the float at a 90-degree angle from the tile surface, moving diagonally to the joints.
Grout was cleaned up using too much water.	Follow the directions on the container and TDS.

Powdery grout in the joints

The lack of a solid, hard grout joint as exhibited by the presence of grout powder



Sources	Solutions and Prevention
Grout joints were not properly packed when they were filled with grout.	Use a medium- to hard-rubber float at a 45-degree angle to the tile surface. Excessive grout should be removed using the float at a 90-degree angle from the tile surface, moving diagonally to the joints. To remedy the problem, remove the grout and replace with fresh grout.
Temperature, humidity and wind can affect the way that grout cures. If grout cures improperly, cracks, pinholes, powdery grout or shading may develop.	Follow the product label instructions and Technical Data Sheet (TDS) before installation. To remedy the problem, remove the grout and replace with fresh grout.
Improper preparation of the grout occurred, such as too much/little water used, incomplete mixing or insufficient slaking.	Follow the product label instructions and TDS before installation. To remedy the problem, remove the grout and replace with fresh grout.
The grout's shelf life expired.	Reference the product shelf life on the TDS, and dispose of the grout if the shelf life has expired. To remedy the problem, remove the grout and replace with fresh grout.
Powdery grout may occur in wall-tile installations with small grout joints due to quick water absorption from highly absorbent tiles and the grout joints.	Wet down the wall tile with a sponge before grouting; this should ensure that there is sufficient water in the cement grout for cement hydration.

Ready-to-Use (RTU) Grout Symptoms

Grout discoloration

A non-uniform, blotchy, shaded or dirty appearance of the grout joints



Sources	Solutions and Prevention
Sources include jobsite conditions – such as direct sun exposure and hot ambient/ tile temperatures – and too much area being grouted at a time before initiating the cleanup process.	Protect tilework from direct sunlight during application, and always apply within the temperature ranges stated on the current Technical Data Sheet (TDS). Grout small areas of between 10 to 15 sq. ft. (0.9 to 1.39 m ²) at a time, so that cleaning can begin before the grout skins over and dries on the tile surface.
The grout color was not what was desired.	Use MAPEI's <i>UltraCare® Grout Refresh™</i> to recolor and seal the joints at the same time.
Due to tile-spacing lugs left in the grout joints, variable depths of the joints caused shading.	Grout a test area to determine the impact of the tile-spacing lugs on the grout color. Wet the tile surface or use <i>UltraCare Grout Release</i> on it.
The varying density and porosity of the natural stone caused the grout to dry blotchy and shade.	For natural stone, use one of MAPEI's <i>UltraCare</i> penetrating sealers to pre-seal stone before grouting.
Grout cleaning was completed too early or too late after floating the grout into the joints.	Cleaning (washing) too early will tend to pull the grout out of the joints. Cleaning too late will tend to leave excessive haze film. Cleaning should follow the product label and TDS recommendations. Typically, 5 to 10 minutes (10 to 15 sq. ft. [0.9 to 1.39 m ²]) of grouting is recommended before doing an initial wash. Temperature and humidity conditions can impact this recommendation.
The grout's shelf life expired.	Reference the product shelf life on the TDS. Dispose of the grout if the shelf life has expired.
The tile-setting material was not properly cured before grouting.	Ensure that the tile-setting material is fully cured before grouting.
A milky latex film formed on the surface of the grout joints just after cleaning.	The film occurs only under certain installation conditions. The film will dissipate between 20 to 30 minutes.
There was excessive tile-setting material in the grout joints.	Remove the mortar from the joints before grouting. Ensure that at least 2/3 of the depth of the joint is free of any mortar.
There were inconsistent grout joint depths and gap widths.	Use tile spacers to ensure proper color/appearance consistency.
Variable glaze on the tile edges caused the grout to dry/cure at different times and led to shading.	Use tile that has a uniform glaze coat on the edges. Use <i>UltraCare Grout Refresh</i> to recolor and seal joints at the same time.
There were 100% relative humidity (RH) conditions at the floor level.	Use fans or air-moving devices to lower the RH and obtain hard grout joints. The product will not become hard at 100% RH. Ideal curing conditions would be 50% RH and 73°F (23°C).

Sources

Solutions and Prevention

The tile-setting material was not properly cured before grouting.

Before grouting, ensure that tile-setting materials are fully cured and that grout areas are clean and dry.

The concrete slab was not fully cured or had moisture-vapor issues.

Avoid grouting on less than fully cured substrates. Test the moisture levels with a calcium chloride test, or an RH or moisture meter. MAPEI's moisture-reduction-barrier products can also be used.

Grouting was done by different installers and under different environmental conditions.

When possible, use the same installer or group of installers and follow the same procedures. In addition, try to maintain consistent environmental conditions.

Grout was prematurely exposed to an excessive amount of moisture.

Typically, RTU grouts cannot be exposed to moisture for a minimum of 72 hours after installation. Use fans and air-moving devices to ensure that the conditions are less than 100% RH. MAPEI does not recommend covering RTU grouts with Kraft paper, tarp, etc. that are in direct contact with the grout, as this will trap moisture and keep the RH percentage high. However, for exterior installations, tenting the grouted area with 3 ft. (0.9 m) or more of clearance is acceptable.

Routine maintenance cleaning of the grout was performed too early after grouting.

Wait 72 hours before beginning routine maintenance cleaning of the grout.

Water used in cleaning had a high content of iron and other minerals.

Use potable water.

Grout that was used for a shower floor has become discolored.

Do not use grout with pebble-stone or river-rock tile or mosaics, irregularly shaped tile or stone, or any time that the grout joint width or depth equals or exceeds 1/2" (12 mm). Use *UltraCare Grout Refresh* to recolor and seal joints at the same time.

Variable glaze on the tile edges caused the grout to dry/cure and led to shading.

Use tile that has a uniform glaze coat on the edges and use *UltraCare Grout Release*.

Yellow spots appear in the grout (affects only MAPEI Flexcolor® 3D and MAPEI Flexcolor Design).

Wash the affected area with a commercial glass cleaner and then rinse with water using a sponge.

Ready-to-Use (RTU) Grout Symptoms

Efflorescence

A white powdery substance (calcium salts) in the grout joints



Sources

Efflorescence will not occur in this grout chemistry.

Solutions and Prevention

No solution is required.

Tile discoloration

A non-uniform hazy, filmy, shaded or dirty appearance on the tile surface



Sources

Grout haze was present on the tile surface after grouting because cleaning was not completed early enough.

Solutions and Prevention

Typically, 5 to 10 minutes (10 to 15 sq. ft. [0.9 to 1.39 m²]) of grouting is recommended before doing an initial wash. Temperature and humidity conditions can impact this recommendation. Use MAPEI's *UltraCare*® Heavy-Duty Stone Tile & Grout Cleaner or *UltraCare* Epoxy Grout Haze Remover to clean the tile surface (see the addendum "*UltraCare* quick-reference guide" that is at the end of this document). Allow the products to dwell or sit for 10 to 15 minutes before removal, depending upon the severity of the haze film.

Sources include jobsite conditions – such as direct sun exposure and hot ambient/tile temperatures – and too much area being grouted at a time before initiating the cleanup process.

Protect tilework from direct sun during application, and always apply within the temperature ranges stated on the current Technical Data Sheet (TDS). Grout small areas of between 10 to 15 sq. ft. (0.9 to 1.39 m²) at a time, so that cleaning can begin before the grout skins over and dries on the tile surface.

Grout was trapped in the pits of tumbled or distressed travertine, or other pitted tiles.

Use *UltraCare* Grout Release before grouting. For severely pitted tile, keep the grout out of the pits by packing the joints only and avoiding the pitted areas on the tile surface.

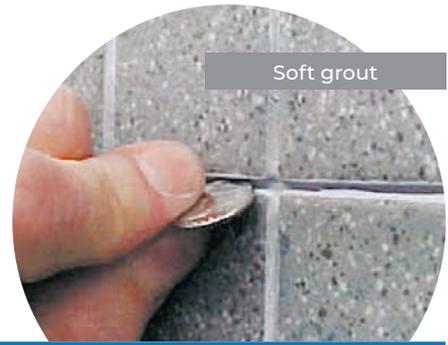
Water used in cleaning had a high content of iron and other minerals.

Use potable water.

Ready-to-Use (RTU) Grout Symptoms

Grout not curing

A grout that will not become hard or cured over time; it remains soft to the touch

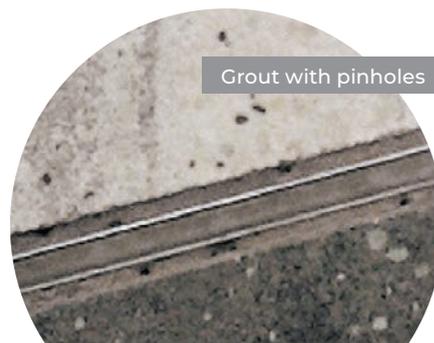


Sources	Solutions and Prevention
There were 100% relative humidity (RH) conditions at the floor level.	Use fans or air-moving devices to lower the RH and obtain hard grout joints. The product will not become hard at 100% RH. Ideal curing conditions would be 50% RH and 73°F (23°C).
Too much water was used during the cleaning process.	Use a damp grout sponge or white scrub pad. Follow recommended product application procedures on the product label and Technical Data Sheet (TDS).
A sealer was applied prematurely after grouting.	Wait at least 72 hours before sealing an RTU grout. A sealer is not necessary for this grout, but it can be applied; this can vary depending upon which RTU grout is being used (check the product label and TDS).
The tile-setting material was not properly cured and too much moisture was left in the joints before grouting.	Ensure that the tile-setting material is fully cured and that joints are dry before starting to grout.
Grout was prematurely exposed to excessive amounts of water.	Allow 72 hours after grouting before intermittent water exposure. RTU grouts are generally not for use in full-submersion installations, but this can vary depending upon which RTU grout is being used (check the product label and TDS).
Grout was exposed to harsh chemicals prematurely.	Allow 7 days before any exposure to harsh chemicals; this can vary depending upon which RTU grout is being used (check the product label and TDS).
Grout was not allowed to properly dry (cure).	Use fans or air-moving devices to lower the RH and obtain hard grout joints. The product will not become hard at 100% RH. Ideal curing conditions would be 50% RH and 73°F (23°C). Light foot traffic is allowed 24 hours after installation, and heavy foot traffic is allowed 72 hours after installation; this can vary depending upon which RTU grout is being used (check the product label and TDS).

Ready-to-Use (RTU) Grout Symptoms

Grout with pinholes

Very small holes – typically the size of a pinhead or less – in the grout joints



Sources	Solutions and Prevention
Too much water was used during the cleaning process.	Use a damp grout sponge or white scrub pad. Follow recommended product application procedures on the product label and Technical Data Sheet (TDS). You can use <i>UltraCare® Grout Refresh™</i> to fill and seal the pinholes.
Grout was not correctly forced into the joints.	RTU grouts should be floated with a medium- to hard-rubber float at a 45-degree angle to the tile surface. Excessive grout should be removed using the float at a 90-degree angle from the tile surface, moving diagonally to the joints.

Grout cracking

A separation or slight opening in a grout joint, usually located between the grout joint edge and the tile edge

Sources	Solutions and Prevention
Grout joints are less than full.	Ensure that the joints are packed well and follow the installation steps found on the product label and/or Technical Data Sheet (TDS). If cracking, pinholes or shrinkage occurs, rebonding (re-application) over the existing RTU grout 24 hours later can be an option. Optionally, you can use <i>UltraCare® Grout Refresh™</i> to fill and seal the pinholes.
The wrong grout was used for the installation.	Select the correct grout for the job. For instance, do not use an unsanded grout in joint widths larger than 1/8" (3 mm). Most RTU grouts can be used in gap widths ranging from 1/16" to 1/2" (1.5 to 12 mm).
Grout was installed before the tile-setting materials had fully cured.	Ensure that the tile-setting material is fully cured before starting to grout.
Tile spacers were left in the grout joints.	Remove all tile spacers before grouting.
Temperature, humidity and wind can affect the way grout cures. If grout cures improperly, cracks, pinholes, powdery grout or shading may develop.	Follow installation recommendations on the product label and TDS.
Grout was installed in movement joints and changes of plane.	Use MAPEI's caulks or sealants in corner joints. Install movement joints per Tile Council of North America (TCNA) Method EJ171.
There was subfloor deflection (movement).	Ensure that the subfloor follows the TCNA guidelines for determination of maximum allowable deflection.
Expansion or movement joints were not installed to allow for proper expansion/contraction.	Do not install tile over existing expansion joints. Do not use RTU grouts in these expansion joints. Use an appropriate MAPEI caulk or sealant for those expansion joints.

Epoxy Grout Symptoms

(Non-Industrial and Industrial Grade)

Grout discoloration

A non-uniform, blotchy, shaded or dirty appearance of the grout joints



Sources	Solutions and Prevention
The grout color was not what was desired.	Use MAPEI's <i>UltraCare® Grout Refresh™</i> to recolor and seal the joints at the same time.
Sources include jobsite conditions – such as direct sun exposure and hot ambient/ tile temperatures – and too much area being grouted at a time before initiating the cleanup process.	Protect tilework from direct sunlight during application, and always apply within the temperature ranges stated on the current Technical Data Sheet (TDS). Grout small areas of between 30 to 40 sq. ft. (2.79 to 3.72 m ²) at a time, so that cleaning can begin before the grout skins over and dries on the tile surface.
Due to tile-spacing lugs left in the grout joints, variable depths of the joints caused shading.	Grout a test area to determine the impact of the tile-spacing lugs on the grout color. Wet the tile surface or use <i>UltraCare Grout Release</i> on it.
Grout joints were wiped excessively during the initial cleaning process.	On certain rough glazed or textured tile surfaces, there is a tendency to use excessive force to remove grout haze. Use <i>UltraCare Grout Release</i> to minimize the need for excessive wiping during cleaning.
On two- and three-part epoxy grouts, the proper ratio of Part A, B and C (if applicable) was not used.	Ensure that all of Part B (hardener) is removed from the packaging and mixed thoroughly into Part A. Then, add Part C if applicable.
The grout's shelf life expired.	Reference the product shelf life on the TDS. Dispose of the grout if the shelf life has expired.
The tile-setting material was not properly cured before grouting.	Ensure that tile-setting materials are cured before grouting.
There was excessive tile-setting material in the grout joints.	Remove dried residue from the grout joints, ensuring that at least 2/3 of the joint depth is left available for grouting.
The varying density and porosity of the tile and natural stone caused the grout to dry blotchy and shade.	Pre-seal tile or stone with a suitable <i>UltraCare</i> penetrating sealer or enhancer and use <i>UltraCare Grout Release</i> .
There were inconsistent grout joint depths and gap widths.	Use tile spacers to ensure proper color/appearance consistency.
The color of the grout became bleached out (washed out) some time after installation, or the grout has turned yellow.	Confirm that the grout is rated for exterior use. Direct sun exposure can discolor grouts if not rated for exterior use. Some epoxy grouts are not UV-stable. Use <i>UltraCare Grout Refresh</i> to recolor and seal the joints at the same time. <i>UltraCare Grout Refresh</i> is not recommended for <i>Kerapoxy® IEG CQ</i> grout.
Routine maintenance cleaning of the grout was performed too early after grouting.	Wait 72 hours before beginning routine maintenance cleaning of the grout.
A freshly grouted installation was covered too early and trapped moisture on the surface of the grout. This moisture then reacted into the grout's surface.	Do not cover a freshly grouted installation; doing so keeps the remaining wash water from evaporating and then reacting into the grout's surface, discoloring the grout permanently.

Epoxy Grout Symptoms

(Non-Industrial and Industrial Grade)

Grout discoloration (continued)

A non-uniform, blotchy, shaded or dirty appearance of the grout joints

Sources	Solutions and Prevention
Standing water that is left on the surface of the grout joint during cure can react into the grout's surface.	Do not leave standing water on a freshly grouted installation. The water could then react into the grout's surface and discolor the grout permanently. Make sure to remove any excessive water with a sponge during the cleaning process.
Grout was prematurely exposed to excessive amounts of chemically treated water (e.g., chlorinated pool water).	For pool-grouting installations, prematurely filling the pool with water will compromise the grout and lead to grout discoloration and other performance issues. Exterior grout installations should be covered during inclement weather for the first seven days after grouting. Follow the product label instructions and TDS regarding the time to cover or expose to water (such as for pools).
Chemically treated water used in cleaning had a high content of iron and other minerals.	Use potable water.
Excessive or puddled water was left in the joints after the final clean.	Be careful not to leave puddles of water in the grout joints during the final cleaning process. Full joints and a square-edged sponge will help in this process.
Epoxy grout was cleaned with a very strong paint stripper and allowed to dwell too long.	Use <i>UltraCare</i> Epoxy Grout Haze Remover.
Vinegar or another non-recommended cleaner was used in the grout-cleanup process.	If the grout is still sound, use <i>UltraCare Grout Refresh</i> to recolor and seal the joints at the same time. <i>UltraCare Grout Refresh</i> is not recommended on <i>Kerapoxy IEG CQ</i> grout. If the grout has been compromised, it will need to be re-grouted. Follow the product-label instructions and TDS. Use <i>UltraCare</i> Grout Release to ease the cleanup requirements.

Efflorescence

A white powdery substance (calcium salts) in the grout joints



Sources	Solutions and Prevention
Efflorescence will not occur in this grout chemistry.	No solution is required.

Epoxy Grout Symptoms

(Non-Industrial and Industrial Grade)

Tile discoloration

A non-uniform haze film, or shaded or dirty appearance on the tile surface



Sources

Grout haze remained on the surface of the tile.

Solutions and Prevention

Make sure that you change your wash water periodically before it contains too much epoxy-cleanup residue. Once your grout installation is complete, wait until the surface of the tiles is dry before you leave the project. Check for any haze that you will not see when tiles are wet and make sure that the tiles are clean. It will be much easier to remove any haze at that moment than during the next day after the haze has reacted and bonded to the tile.

Use MAPEI's *UltraCare*® Epoxy Grout Haze Remover to clean the tile surface. Allow the product to sit for 30 minutes to 1 hour, depending upon the severity of the haze film. During the course of that time, mist the tile surface with water to prevent drying on the surface. Repeat these steps as necessary. Use *UltraCare* Grout Release before grouting to protect the tile surface and aid in the grout cleanup (see the addendum "*UltraCare* quick-reference guide" that is at the end of this document).

For industrial-grade epoxies, it is important to follow the Technical Data Sheet's (TDS) "Product Application" section very closely. When using *Kerapoxy*® *IEG CQ*, flood the surface on initial and final wash with wash water containing special initial/final wash cleaning additive packets that ensure that haze film will not occur or will be minimized. Also, use a white scrubpad on both the initial and final wash; then, sponge off excess water. The time between the initial and final wash should be 5 to 10 minutes.

Sources include jobsite conditions – such as direct sun exposure and hot ambient/tile temperatures – and too much area being grouted at a time before initiating the cleanup process.

Protect tilework from direct sunlight during application, and always apply within the temperature ranges stated on the current TDS. Grout small areas of between 30 to 40 sq. ft. (2.79 to 3.72 m²) at a time, so that cleaning can begin before the grout skins over and dries on the tile surface.

Grout was trapped in the pits of tumbled travertine or other pitted tiles.

Use *UltraCare* Grout Release before grouting. For severely pitted tile, keep the grout out of the pits by packing the joints only and avoiding the pitted areas on the tile surface.

Water used in cleaning had a high content of iron and other minerals.

Use potable water. For MAPEI's *Kerapoxy IEG CQ* industrial-grade epoxy grout, be sure to use the initial/final wash cleaning additive packets that are provided in the large kit. For each of the four units of *Kerapoxy IEG CQ*, there are two additive packets per unit that should be added to clean water (2 U.S. gals. [7.57 L] per packet) for both the initial and final wash.

Foot traffic was prematurely allowed on the tile/grout.

When using MAPEI's non-industrial epoxy grouts *Kerapoxy CQ* and *Kerapoxy*, do not allow foot traffic for 24 hours after installation. For heavy foot traffic, allow 48 hours of cure time. When using MAPEI's industrial-grade epoxy grout *Kerapoxy IEG CQ*, allow 5 to 12 hours of cure time before heavy foot traffic.

Routine maintenance used a cleaning solution that was too harsh.

For routine cleaning of MAPEI's non-industrial epoxy grouts *Kerapoxy CQ* and *Kerapoxy*, do not use no-wash enzymatic cleaners. For MAPEI's industrial-grade epoxy grout *Kerapoxy IEG CQ* (which is resistant to fatty acids and no-wash enzymatic cleaners), tile discoloration will not occur and grout integrity will not be compromised.

Epoxy Grout Symptoms (Non-Industrial and Industrial Grade)

Grout with pinholes

Very small holes – typically the size of a pinhead or less – in the grout joints

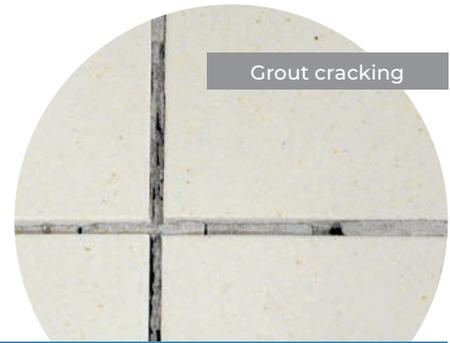


Sources	Solutions and Prevention
Grout joints are less than full.	Ensure that the joints are packed well and follow the installation steps found on the product label and/or Technical Data Sheet (TDS). If pinholes occur, rebonding (re-application) over the existing epoxy grout 24 hours later can be an option.
Grout was not correctly forced into the joints.	For epoxy grouts, use a hard rubber float at a 45-degree angle to the tile surface, applying pressure on the float to force grout into the joints. Excessive grout should be removed using the float at a 90-degree angle from the tile surface, moving diagonally to the joints.
High-speed mixing trapped air in the grout mix or the grout was mixed for too long.	Use a drill mixer at a speed of no more than 300 rpm for the recommended time listed on the product label or TDS.
Grout pinholes occur due to poor mortar coverage.	Reapply grout over existing grout 24 hours later. Increase your mortar coverage.

Epoxy Grout Symptoms (Non-Industrial and Industrial Grade)

Grout cracking

A separation or slight opening in a grout joint, usually located between the grout joint edge and the tile edge



Sources	Solutions and Prevention
Grout was installed before the tile-setting materials had fully cured.	Ensure that the tile-setting material is fully cured before starting to grout.
Tile spacers were left in the grout joints.	Remove all tile spacers before grouting.
Temperature, humidity and wind can affect the way grout cures. If grout cures improperly, cracks, pinholes, powdery grout or shading may develop.	Follow the product label instructions and Technical Data Sheet (TDS).
Grout was installed in movement joints where there is a change in plane.	Use a MAPEI caulk in these areas.
There was subfloor deflection (movement).	Ensure that the subfloor follows the Tile Council of North America (TCNA) guidelines for determination of maximum allowable deflection.
Expansion or movement joints were not installed to allow for proper expansion/contraction.	Do not install tile over existing expansion joints. Do not use epoxy grout in these expansion joints. Use an appropriate MAPEI caulk or sealant for those expansion joints.
Grout joints are less than full.	Ensure that the joints are packed well and follow the installation steps found on the product label and/or TDS. If cracking, pinholes or shrinkage occurs, rebonding (re-application) over the existing epoxy grout 24 hours later can be an option. Generally, 1/8" (3 mm) depth is required when re-applying epoxy grout to fill low or cracked joints.
Grout was not correctly forced into the joints.	Epoxy grouts should be floated with a hard rubber float at a 45-degree angle to the tile surface. Excessive grout should be removed using the float at a 90-degree angle from the tile surface, moving diagonally to the joints.

UltraCare® quick-reference guide

Product Name and Description		Ceramic tile	Granite	Grout
Sealers	<i>UltraCare® Penetrating Plus SB Stone & Porcelain Tile Sealer</i>	•	•	•
	<i>UltraCare Penetrating Stone, Tile & Grout Sealer</i>	•	•	•
	<i>UltraCare Penetrating SB Stone, Tile & Grout Sealer</i>	•	•	•
	<i>UltraCare Penetrating Plus Stone, Tile & Grout Sealer</i>	•	•	•
	<i>UltraCare Enhancing Stone Sealer</i>		•	•
	<i>UltraCare Enhancing Plus Stone Sealer</i>		•	•
	<i>UltraCare Sealer for Glass Tiles & Shower Doors</i>			
	<i>UltraCare Grout Sealer</i>			•
	<i>UltraCare Grout Maximizer</i>			•
	Finishes	<i>UltraCare High-Gloss Sealer & Finish</i>		
<i>UltraCare Low-Sheen Sealer & Finish</i>				•
Cleaners	<i>UltraCare Everyday Stone & Grout Cleaner & Resealer</i>	•	•	•
	<i>UltraCare Everyday Stone, Tile & Grout Cleaner</i>	•	•	•
	<i>UltraCare Concentrated Tile & Grout Cleaner</i>	•	•	•
	<i>UltraCare Everyday Stone Clean & Polish</i>		•	
	<i>UltraCare Abrasive Surface Cleaner</i>	•	•	•
	<i>UltraCare Heavy-Duty Stone, Tile & Grout Cleaner</i>	•	•	•
	<i>UltraCare Acidic Tile & Grout Cleaner</i>	•	•	•
Problem-Solvers	<i>UltraCare Grout Refresh™ **</i>			•
	<i>UltraCare Grout Release</i>	•	•	•
	<i>UltraCare Cement Grout Haze Remover</i>	•	•	•
	<i>UltraCare Epoxy Grout Haze Remover</i>	•	•	•
	<i>UltraCare Heavy-Duty Sealer & Coating Stripper</i>	•	•	•
	<i>UltraCare Sulfamic Acid Crystals</i>	•	•	•

Honed marble, limestone and travertine	Glass	Polished marble, limestone and travertine	Porcelain tile	Quarry tile	Saltillo / Terra cotta	Sandstone / Slate	Textured marble, limestone and travertine*
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* Textured surfaces include brushed, flamed and tumbled.

** Available in MAPEI's full color palette

Take *UltraCare*® of your stone, tile and grout surfaces



CLEANING PRODUCTS

PROTECTING PRODUCTS

COMPLEMENTARY PRODUCTS

MAPEI's *UltraCare* products offer an award-winning, comprehensive lineup of care-and-maintenance solutions for stone, tile and grout installations. The *UltraCare* family features premium sealers, highly concentrated cleaners, professional-strength problem-solvers and one-step finishes with maximum stain resistance.

Contractors have spoken. MAPEI has been honored as the "most preferred brand" and "best" by NTCA members via the Clear Seas Report, in part due to its *UltraCare* family of sealers. Based on an industry-wide survey, MAPEI won awards for:

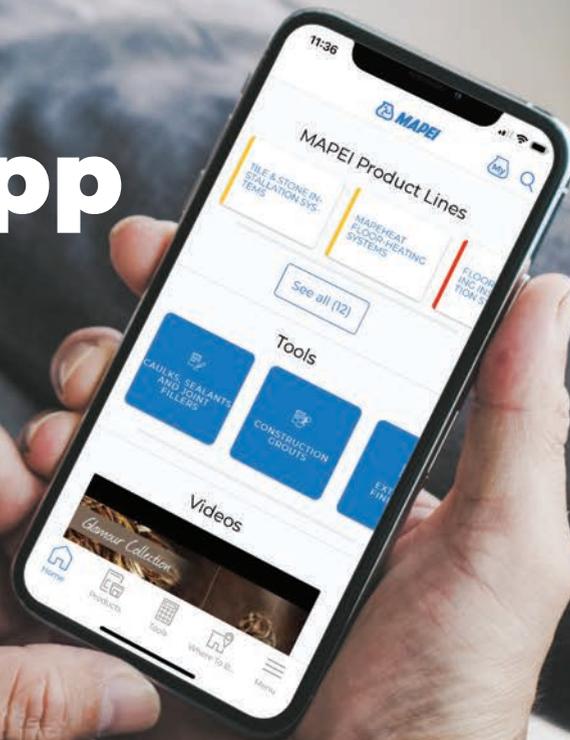
- Most preferred brand of sealers.
- Best overall value.
- Best product performance.
- Best product availability.



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