MAPEI®

Kerapoxy®

Premium, stain-free, 100%-solids epoxy mortar and grout

Meets or exceeds ANSI A118.3 requirements for chemical-resistant, water-cleanable tile-setting and grouting epoxy

DESCRIPTION

Kerapoxy is a premium-grade, water-cleanable, 100%-solids epoxy mortar and nonsagging grout system for installations where exceptionally high-strength chemical and impact resistance is required. Available in all 30 MAPEI colors for grouting, *Kerapoxy* allows use of light-colored grout without worries about spaghetti, fruit juice, ketchup or other tough stains. *Kerapoxy* is excellent for countertops, high-traffic areas, areas needing chemical resistance (bottling plants, etc.) – nearly anywhere a conventional grout might stain or break down. It is less sensitizing than other epoxy mortars and grouts. It also meets or exceeds ANSI A118.3 requirements for chemical-resistant, water-cleanable grouting epoxy, and is authorized by the USDA for incidental food contact.

USES

- For interior floor installations when used as a mortar
- For interior and exterior floor and wall installations when used as a grout
- For setting and grouting of ceramic floor and wall tile, quarry tile, acid-resistant floor brick, paver tile and slate
- For industrial, commercial and institutional applications with extremely high mortar and grout strength requirements
- For heavy traffic areas such as subway stations, shopping malls and air terminal buildings
- For applications requiring high acid and chemical resistance such as dairies, bottling plants, meat processing plants, restaurants, hospitals, schools, pharmaceutical laboratories, intensive-care units and animal clinics
- For areas requiring stain-resistant grout such as countertops, vanities and laboratory tabletops
- For the installation of Rosso Levanto and Negro Marquina marble or green marble, granite and their agglomerates. For other marble types, use the *Kerabond/Keralastic*™ System. For setting light-colored marble, use white *Granirapid*® or white *Ultraflex*® *RS*.

  Note: Marble, granite and slate are products of nature made from a vast combination of minerals and chemicals that may cause the material to behave or react in a manner beyond our control. Likewise, we do not have control over any of the materials and process used in the manufacturing of agglomerates. Therefore, determine the suitability of all the materials before proceeding with the installation.
- For use over properly prepared concrete, masonry block, cement mortars and leveling coats, brick, exterior-grade plywood (interior residential dry floors and countertops only), cement backer units (CBUs), terrazzo and properly prepared existing ceramic tile

TECHNICAL NOTES

- Epoxy mortar thickness should not exceed 1/4" (6 mm) under the tile.
- Joint width should be at least 1/16" (1,5 mm) and should not exceed 3/8" (10 mm).

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- Do not use as a mortar on exterior installations.
- Do not use for grouting white or translucent marble.
- Unless the Cold-Weather Formula is used*, the temperature of the tilework or substrate must be between 60°F (16°C) and 90°F (32°C) while spreading or grouting. The substrate temperature should be maintained at that level until *Kerapoxy* has hardened sufficiently (in 24 to 72 hours).

  *For the Cold-Weather Formula, the temperature of the substrate must be between 35°F (2°C) and 60°F (16°C).
- Do not use in areas subject to excessive heat. Once cured, *Kerapoxy* will resist temperatures up to 212°F (100°C). Keep steam-cleaning wands 6" to 12" (15 to 30 cm) above the tile surface.
- When used as a grout on exterior installations, color variations may occur over time, especially with lighter shades.
- Do not apply over particleboard, Masonite, chipboard, Lauan, gypsum floor-patching compounds, metal or similar dimensionally unstable substrates.

RECOMMENDED SUBSTRATES

- Fully cured concrete (at least 28 days old)
- Masonry block
- Brick
- Exterior-grade plywood (interior residential floor and countertop applications in dry areas only)
- Cement backer units (CBUs)
- Properly prepared existing ceramic tile
- Properly prepared cement terrazzo

Consult MAPEI's Technical Services Department for installation recommendations regarding substrates and conditions not listed.

INSTRUCTIONS

1. Surface Preparation

See MAPEI's "Surface Preparation Requirements" document.

2. Mixing

2.1 Wear rubber gloves and avoid skin contact during mixing, application and cleaning.

2.2 Parts A and B are packaged to exact quantity ratios for proper curing.

2.3 Pour out all material from the Part B container into Part A (paste). To improve flowability and texture, allow enough time for the material to flow completely out of the container. Always mix complete units. Do not add other materials to this mixture.

2.4 Use a slow-speed mixer, (about 300 rpm), or manually mix smaller kits with a margin trowel.

2.5 Avoid air entrapment and prolonged mixing, which will shorten the pot life.

2.6 Mix thoroughly until a homogenous, consistent color is obtained.

2.7 Wash hands and tools immediately with water before epoxy hardens. *Kerapoxy* is extremely difficult to remove once cured.

2.8 Do not place the lid on the container after the material has been mixed.

3. Application as a Mortar

3.1 Remove the mixed product from the container and place in piles on the floor. *Kerapoxy* is a thermosetting product, so it sets faster in a container or a large mass.

3.2 Use a typical notched trowel (see chart) with sufficient depth to ensure proper epoxy mortar transfer, covering 100% of the tile back.

3.3 Using the flat or straight edge of the trowel (see chart), spread a thin, pressure-applied coat onto the substrate. Follow immediately with additional material, then comb the surface using the notched side of the trowel to achieve an even-setting bed.

3.4 The entire substrate should be covered, leaving no bare areas between the ridges.

3.5 Do not spread more epoxy mortar than can be covered with ceramic tiles immediately. Set tiles dry; that is, do not soak tiles before application.

3.6 Place tiles firmly into position with a slight twisting motion to ensure good contact with the epoxy mortar.

3.7 Follow immediately with proper and thorough beat-in to flatten the ridges or notches into a continuous bed, allowing at least 25% of the thickness of each tile to be embedded into the epoxy mortar. Following this procedure will minimize the number of air bubbles that reach the surface and cause pinholes during grouting.

3.8 Make all alignments or adjustments immediately following beat-in.

3.9 Remove smudges from the tile face immediately with a clean sponge and water.

3.10 Do not disturb, grout or walk over tiles for at least 24 hours.

3.11 Wash hands and tools immediately with water while material is still fresh.

4. Expansion and Control Joints

4.1 Provide for expansion and control joints where specified.

4.2 Do not cover or bridge any expansion joints with epoxy mortar.

4.3 Plan installation so that tiles line up on one side of the control or expansion joints.

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TECHNICAL DATA

References: Meets or exceeds ANSI A118.3 requirements for chemical-resistant, water-cleanable tile-setting and grouting epoxy

Pot life at 73°F (23°C)	60 to 90 minutes
Open time at 73°F (23°C)	2 hours
Initial set	24 hours
Final cure at 73°F (23°C)	14 days
Shear strength (per ANSI A118.3 tests)	> 1,000 psi (6,90 MPa)
Compressive strength (per ANSI A118.3 tests)	6,000 psi (41,4 MPa)
Cleanability	With water while fresh. Consult MAPEI's Technical Services Department regarding removal of hardened epoxy.
Colors	Available in a wide variety of designer colors. Refer to MAPEI's Grout Color Chart. Sample grout color chips are available upon request. For information on made-to-order colors, contact MAPEI.
Shelf life	2 years when stored in original, sealed containers at room temperature
Health and safety	Consult the Material Safety Data Sheet (MSDS) for safe-handling instructions.

PACKAGING

Kits: 1 U.S. qt. (946 mL); 1 U.S. gal. (3,79 L); 2 U.S. gals. (7,57 L)

WORKING CHARACTERISTICS AT VARIOUS TEMPERATURES

Temperature will have a dramatic effect on the working characteristics of an epoxy system. Epoxy materials will become thinner at higher temperatures and have a shorter pot life; at lower temperatures, the reverse is true. For best results, use the product between 60°F (16°C) and 90°F (32°C). For the Cold-Weather Formula, use when surface temperature is between 40°F (4°C) and 60°F (16°C).

If the material is cold, or if one or both parts are stiff or show signs of partial crystallization, place the unopened *Kerapoxy*® kit in warm tap water (about 120°F [49°C]) for 10 to 20 minutes and let the material return to room temperature before mixing.

The temperature of the tilework or substrate must be between 60°F (16°C) and 90°F (32°C) while spreading or grouting, and that temperature level should be maintained until *Kerapoxy* has hardened sufficiently (in 24 to 72 hours). If the temperature of the tilework or substrate will be between 35°F (2°C) and 60°F (16°C), use the *Kerapoxy* Cold-Weather Formula.

In hot climates, the material's pot life may be extended by adjusting the grouting operation to the coolest time of day (such as early morning), and by cooling the material in an ice chest of ice water. *Kerapoxy* should be stored at room temperature for at least 24 hours before use to make its spreading and cleaning easier.

Temperature	Open Time	Pot Life	Clean Within	Viscosity
100°F (38°C)	30 minutes	45 minutes	15 minutes	Thin paste
73°F (23°C)	2 hours	1 hour	30 to 40 minutes	Medium paste
45°F (7°C)	20 hours	5 hours	90 minutes	Viscous, thick paste

Note: The above data represents standard Kerapoxy response to temperature. Consult MAPEI's Technical Service Department for installation recommendations for other conditions.

4.4 Protect tilework with metal strips along both edges of structural building expansion joints.

4.5 Insert the sealant manufacturer's specified compressible bead and sealant for expansion and control joints.

5. Application as a Grout

Note: Both the application and cleanup procedures for an entire kit typically should not exceed 45 minutes to 1 hour at room temperature.

5.1 Do not disturb, grout or walk over tiles for at least 24 hours after setting.

5.2 Tile surfaces must be clean, dry and free of any debris.

5.3 All joints must be clean and free of excess setting material, standing water, dust and foreign substances.

5.4 Surface temperature should be maintained between 60°F (16°C) and 90°F (32°C) for best results. The surface temperature range for the Cold-Weather Formula is 40°F (4°C) to 60°F (16°C).

5.5 Prepare and mix *Kerapoxy* as recommended in Section 2, "Mixing."

5.6 Remove mixed product from the container and place in small piles to extend working time. (If grouting a wall, place on kraft paper laid on the floor.) This is a thermosetting product, so it sets up faster in a container or in a large mass.

5.7 Using a hard, green rubber float (as from GroutMaster™ or Grout King™), force the grout into the joints in a continuous manner, leaving it flush with the tile edge.

5.8 Make sure all joints are well-compacted, and free of voids and gaps. Fill the joints with the maximum amount of grout possible.

5.9 Thoroughly remove excess *Kerapoxy* from the face of the tile before it loses its plasticity or begins to set. This is most easily accomplished by holding the rubber float at a 90° angle to the tile surface, proceeding diagonally to the joint surface, then proceeding diagonally to the joint line. Leave as little epoxy grout on the tile surface as possible.

5.10 Clean tiles immediately after applying each unit of *Kerapoxy*. Grout and clean in small areas. Do not attempt to use more than one unit before cleaning tiles. On large projects, working in teams of 2 to 3 people will simplify the installation.

6. Cleaning of Grout

6.1 Before *Kerapoxy* hardens on the tile surface, apply a liberal amount of water (cold water is acceptable) to the freshly grouted area and scrub the tile surface diagonally to the joint line using a nonwoven nylon scouring pad (such as a 3M Scotch-Brite® pad). Apply the minimum amount of pressure on the pad, rinsing it frequently while cleaning.

APPROXIMATE COVERAGES*

FOR USE AS A SETTING MORTAR

	1 U.S. qt. (946 mL)	1 U.S. gal. (3,79 L)	2 U.S. gals. (7,57 L)
1/4" (6 mm) square-notched trowel	4.5 sq. ft. (0,42 m^2)	18 sq. ft. (1,67 m^2)	36 sq. ft. (3,34 m^2)
5/32" (4 mm) V-notched trowel	10 sq. ft. (0,93 m^2)	40 sq. ft. (3,72 m^2)	80 sq. ft. (7,43 m^2)

FOR GROUTING (coverages in sq. ft. per U.S. gal. [m^2 per L])

Mosaics

Tile Size	Joint Width			
	1/16" (1,5 mm)	1/8" (3 mm)	1/4" (6 mm)	3/8" (10 mm)
1" x 1" x 1/4" (25 x 25 x 6 mm)	64 (1,48)	32 (0,74)	–	–
2" x 2" x 1/4" (50 x 50 x 6 mm)	120 (2,78)	60 (1,39)	–	–
3" x 3" x 1/4" (75 x 75 x 6 mm)	160 (3,71)	80 (1,85)	–	–

Wall Tiles

Tile Size	Joint Width			
	1/16" (1,5 mm)	1/8" (3 mm)	1/4" (6 mm)	3/8" (10 mm)
4-1/4" x 4-1/4" x 1/4" (106 x 106 x 6 mm)	228 (5,29)	–	–	–
6" x 6" x 1/4" (150 x 150 x 6 mm)	320 (7,44)	160 (3,71)	–	–
8" x 8" x 3/8" (200 x 200 x 10 mm)	280 (6,50)	140 (3,25)	–	–
10" x 10" x 3/8" (250 x 250 x 10 mm)	336 (7,80)	168 (3,90)	–	–

Pavers, Quarries and Bricks

Tile Size	Joint Width			
	1/16" (1,5 mm)	1/8" (3 mm)	1/4" (6 mm)	3/8" (10 mm)
4" x 4" x 3/8" (100 x 100 x 10 mm)	136 (3,15)	68 (1,57)	34 (0,78)	22 (0,51)
4" x 8" x 1/2" (100 x 200 x 12 mm)	–	72 (1,67)	36 (0,84)	24 (0,56)
4" x 8" x 3/4" (100 x 200 x 19 mm)	–	48 (1,11)	24 (0,56)	16 (0,37)
4" x 8" x 1-1/8" (100 x 200 x 29 mm)	–	31 (0,71)	15.5 (0,37)	10 (0,23)
4" x 8" x 1-3/8" (100 x 200 x 35 mm)	–	26 (0,60)	13 (0,30)	8.6 (0,18)
6" x 6" x 1/2" (150 x 150 x 12 mm)	–	76 (1,76)	38 (0,88)	25.2 (0,59)
8" x 8" x 3/8" (200 x 200 x 10 mm)	280 (6,50)	140 (3,25)	68 (1,57)	46 (1,06)
10" x 10" x 3/8" (250 x 250 x 10 mm)	–	168 (3,90)	84 (1,95)	56 (1,30)
12" x 12" x 1/2" (300 x 300 x 12 mm)	–	160 (3,71)	80 (1,85)	53.3 (1,25)
16" x 16" x 3/8" (400 x 400 x 10 mm)	–	280 (6,50)	140 (3,25)	92 (2,13)

** Quantities shown are given for estimating purposes only. Actual job-site coverages may vary according to substrate conditions, type of trowel used and setting practices. The actual tile size and thickness, as well as the width of the joints, also will influence the actual coverages obtained.*

When grouting abrasive or slip-resistant floor tiles, anticipated coverage can be dramatically decreased. Alternatives to the traditional grouting technique, such as a grout bag or commercial sealant gun, may be of assistance. Consult MAPEI's Technical Services Department to obtain approximate coverages not shown in the above table.

Always keep plenty of water on the surface being cleaned, being careful not to get any water in the ungrouted joints ahead.

6.2 Remove the remaining water and residue with a damp, firm cellulose sponge, applying the minimum amount of pressure, and move diagonal to the joint line. Rinse the sponge often and keep changing the rinse water to avoid residue buildup.

6.3 Final cleanup is best accomplished with the use of a towel and two pails of clean water. Dampen the towel in one of the pails of water.

6.4 Drape the clean, damp towel over the newly grouted surface. Holding two corners of the towel, drag it over the tiles. The weight of the damp towel will help to remove any epoxy film still remaining.

6.5 Thoroughly rinse the towel in the second pail of water. Dampen the towel again in the pail of clean water, and repeat.

6.6 Change the cleaning water often to maintain cleanliness.

6.7 Do not step on freshly cleaned tiles. Permanent damage to the grout could result.

6.8 Do not allow surplus epoxy to stand in joints of adjacent areas.

6.9 Do not allow excess water or film to remain on the tile surface. It will be difficult to remove any residue once hardened.

CHEMICAL RESISTANCE

Resistance to chemicals depends on the concentration, temperature and duration of exposure. For long-term durability and improved grout appearance, clean up spills immediately after they occur.

Laboratory tests reveal variable resistance to certain chemicals. The following table may be considered as a general guide for *Kerapoxy* applications at 73°F (23°C).

Resistance tests on chemicals other than those listed may be conducted upon request by MAPEI's Technical Services Department.

Legend

++ Excellent resistance
+ Good resistance; long exposure could cause some deterioration; clean surface rapidly with water
- Poor or no resistance

Product Types	Concentration	Laboratory	Long Time	Short Time
Acids				
Vinegar	2.5%	++	++	++
	5%	++	+	++
	10%	-	-	-
Hydrochloric acid	10%	++	++	++
Chromic acid	20%	-	-	-
Citric acid	10%	++	++	++
Formic acid	2.5%	++	++	++
	10%	-	-	-
Lactic acid	2.5%	++	++	++
	5%	++	+	++
	10%	+	-	+
Nitric acid	10%	++	+	++
	50%	-	-	-
Phosphoric acid	50%	++	++	++
	75%	+	-	+
Sulfuric acid	1.5%	++	++	++
	10%	++	++	++
	96%	-	-	-
Tannic acid	10%	++	++	++
Oxalic acid	10%	++	++	++
Oleic acid		-	-	-
Base and Salt Solutions				
Ammonia solution	25%	++	++	++
Caustic soda	50%	++	++	++
Hypochlorite solution				
• Act. CL 6.4 g/l		++	+	++
• Act. CL 165 g/l		-	-	-
Sodium hyposulfite		++	++	++
Calcium chloride		++	++	++
Iron chloride		++	++	++
Sodium chloride		++	++	++
Sodium chromate		++	++	++
Sugar		++	++	++
Aluminum sulfate		++	++	++
Potassium permangenate	5%	++	+	++
	10%	+	-	+
Caustic potash	50%	++	++	++
Hydrogen peroxide	1%	++	++	++
	10%	++	++	++
	25%	++	++	++
Sodium bisulfite		++	++	++
Oils and Combustible Products				
Gasoline		++	++	++
Turpentine		++	++	++
Diesel fuel		++	++	++
Peanut oil		++	++	++
Tar		++	+	+
Olive oil		++	++	++
Heating oil		++	++	++
Solvents				
Acetone		-	-	-
Ethylene glycol		++	++	++
Glycerol		++	++	++
Methylcellosolve		-	-	-
Perchloroethylene		-	-	+
Carbon tetrachloride		+	-	+
Chloroform		-	-	-
Methylene chloride		-	-	-
Toluene		-	-	+
Carbon disulfide		+	-	+
Mineral spirits		++	++	++
Benzene		-	-	+
Trichloroethane		-	-	-
Xylene		-	-	-

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Note: Check the installation on the following day to make sure it is completely clean. If the surface has any tacky residue, remove it with a neutral cleaner or a mild solution of detergent and water.

7. Protection

Once cured, *Kerapoxy* becomes a high-performance, chemical-resistant mortar and grout. For best results, adhere to the recommended guidelines listed in the following chart.

Under normal room conditions (73°F/23°C):

Protect from:	For at least:
Light foot traffic	24 hours
Normal traffic	72 hours
Routine cleaning materials	72 hours
Heavy traffic	7 days
Water immersion	21 days
Food products and chemicals that can cause stains	10 to 14 days
Chemical attack	14 days

NOTICE

Before using, user shall determine the suitability of the product for its intended use and user alone assumes all risks and liability whatsoever in connection therewith. Any claim shall be deemed waived unless made in writing to us within fifteen (15) days from date it was, or reasonably should have been, discovered.

MAPEI

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Additional Information

Website: www.mapei.com

MAPEI – USA

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For the most current product data, visit www.mapei.com.

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