



Mapeguard[®] 2

3-in-1 Membrane for Crack Isolation, Waterproofing and Sound Reduction



DESCRIPTION

Mapeguard 2 is a next-generation, flexible, thin, 40-mil (1-mm) lightweight, load-bearing, fabric-reinforced “peel-and-stick” crack-isolation, waterproofing and vapor-control membrane. *Mapeguard 2* helps to prevent existing or future in-plane floor cracks (with movement up to 3/8” [10 mm] wide) from transmitting through grout, ceramic tile and natural stone. It also reduces the transmission of impact sound (footsteps, dropped objects, etc.) and airborne sound (voice, TV, etc.) through floors when installed under ceramic tile, stone or wood floor coverings.

FEATURES AND BENEFITS

- Dual protection: Provides crack isolation and sound reduction
- ASTM C627 service rating (Robinson): Rated “Extra Heavy”
- Lightweight: 35% lighter than previous generations of comparable membranes
- Semi-rigid sheet: Easy to position on floor and cut to size
- Split-back release film: Installs faster than membranes with 1-piece liners
- White surface: Easy to view under lower-light conditions
- Thin-film adhesive backing: Bonds to a variety of substrates
- Time-saving: Prime, peel, stick and then install tile or wood immediately
- Low-odor: Great for confined spaces
- Contains 5% post-consumer recycled material
- Certified by SCS Indoor Advantage Gold

INDUSTRY STANDARDS AND APPROVALS

- ASTM C627 (Robinson): See the “Product Performance Properties” section below for *Mapeguard 2*.
- ASTM E492-04 (Impact Sound), E90-04 (Airborne Sound), E2179 (Impact Sound): See the “Product Performance Properties” section below for *Mapeguard 2*.
- ANSI A118.12 (Crack Isolation For Tile & Stone): See the “Product Performance Properties” section below for *Mapeguard 2*. *Mapeguard 2* exceeds the high-performance standard for crack isolation.
- Exceeds ANSI A118.13 industry standards for bonded thin-set ceramic sound-reduction membranes
- ANSI A118.10 (specifications for load-bearing, bonded, waterproof membranes for thin-set ceramic tile and dimension stone installations): See the “Product Performance Properties” section below for *Mapeguard 2* (when used with *Mapetape™ BB* sealing tape).
- ASTM E96 (standard test method for water vapor transmission of materials): See the “Product Performance Properties” section below for *Mapeguard 2* (when used with *Mapetape BB* sealing tape).

WHERE TO USE

- Floor applications that are residential (homes, apartments and condominiums) and commercial/industrial (airports, malls, office buildings, restaurants and galleries), both interior and exterior (with proper drainage)
- For under ceramic tile, natural stone and wood flooring
- For installations requiring TCNA environmental exposure classifications Res1, Res2, Res6, Com1, Com2 or Com6

LIMITATIONS

(for *Mapeguard 2*, *MAPEI SM Primer™*, *MAPEI SM Primer Fast* and *MAPEI HM Primer™*)

- Do not use over cracks or control joints subject to out-of-plane movement, or in-plane movement greater than 3/8" (10 mm). See the "Expansion Joints" section below.
- Do not use over substrates containing asbestos, plank wood flooring, presswood, particleboard, chipboard, pressure- or oil-treated plywood, Luan plywood, Masonite, self-stick tile, laminate, metal or fiberglass surfaces, or poured epoxy floors or similar dimensionally unstable materials.
- Do not use where excessive substrate moisture and/or where negative hydrostatic pressure exists.
 - The maximum amount of acceptable moisture in a concrete substrate primed with *MAPEI SM Primer* is 5 lbs. per 1,000 sq. ft. (2.27 kg per 92.9 m²) per 24 hours as determined by an ASTM 1869 calcium chloride test kit.
 - The maximum amount of acceptable moisture in a concrete substrate primed with *MAPEI SM Primer Fast* is 8 lbs. per 1,000 sq. ft. (3.63 kg per 92.9 m²) per 24 hours as determined by an ASTM 1869 calcium chloride test kit.
 - The maximum amount of acceptable moisture in a concrete substrate primed with *MAPEI HM Primer* is 15 lbs. per 1,000 sq. ft. (6.80 kg per 92.9 m²) per 24 hours using an ASTM 1869 calcium chloride test kit. Do not install when the relative humidity of concrete slabs exceeds 95% (ASTM F2170).
 - When moisture vapor emissions are in excess of 15 lbs. per 1,000 sq. ft. (6.80 kg per 92.9 m²) per 24 hours, call MAPEI's Technical Services Department for recommendations.
- Do not use on vertical surfaces, under glass tile installations, or as a roof deck membrane or wear surface.
- Do not use on shower floors or in submerged applications or floors subject to standing water.
- Do not use on exterior floors with drainage of less than 1/4" per foot (6 mm per 30.5 cm).
- When using *Mapeguard 2* over gypsum-based floorpatching or leveling compounds, reference the technical bulletin "Tiling over gypsum" found in the Tile & Stone Installation Systems section of MAPEI's Website.
- Do not use *Mapeguard 2*, *MAPEI SM Primer*, *MAPEI SM Primer Fast* or *MAPEI HM Primer* with solvent-based materials.
- Do not use self-leveling products over *Mapeguard 2*.
- Do not use premixed products to set tile over *Mapeguard 2*.

- Do not use with radiant floor-heating systems.
- If using *Mapeguard 2* for vapor management, do not use primers *MAPEI SM Primer* or *MAPEI SM Primer Fast*. You must use *MAPEI HM Primer*, which allows for a maximum amount of acceptable moisture in a concrete substrate of 15 lbs. per 1,000 sq. ft. (6.80 kg per 92.9 m²) per 24 hours using an ASTM 1869 calcium chloride test kit. Do not install *MAPEI HM Primer* when the relative humidity of concrete slabs exceeds 95% (ASTM F2170).

Note: On occasion, dimensionally weak natural stone tile that normally would not be categorized as moisture-sensitive (such as travertine, limestone, marble and agglomerates) can exhibit doming, cupping or curling when wet-set methods of installation are used over impervious sheet membranes such as *Mapeguard 2*. For this reason, areas requiring more than 3/8" (10 mm) buildup require the use of a self-leveling underlayment or cured mud-bed application before installation of *Mapeguard 2*. Do not use thin-set or large-and-heavy-tile mortar to compensate for irregularities in the substrate or to increase the elevation of the finished installation. When installing natural stone, always do a mockup area of the proposed installation and allow materials to reach a full cure to ensure achieving the desired effect. For more information regarding these methods or materials, contact MAPEI's Technical Services Department before installation or design.

SUITABLE SUBSTRATES

- Concrete (cured at least 28 days)
- Cement mortar beds and leveling coats
- Cement backer units (CBUs) – see manufacturer's installation guidelines
- Cement terrazzo floors, well-bonded ceramic tile and natural stone, and vinyl composition tile (VCT)
- APA Group 1 and CANPLY 0121 exterior-grade plywood (interior, residential and light commercial floors and countertops in dry conditions only). (See the TCNA Handbook for additional information and following statement regarding deflection.)
- Plywood or oriented strand board (OSB). Installation of tile must be done following installation standards published in the most current TCNA Handbook, ANSI A108 specification. If the OSB is weather-beaten or delaminated, it must be properly overlaid with a cement backer unit or an additional layer of subfloor.
- Steel subfloor, when primed with *MAPEI HM Primer*
- MAPEI's *Planiseal® PMB*
- MAPEI's *Mapelastic® AquaDefense* or *Mapelastic Turbo*

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

Tile Council of North America (TCNA) Statement on Deflection Criteria

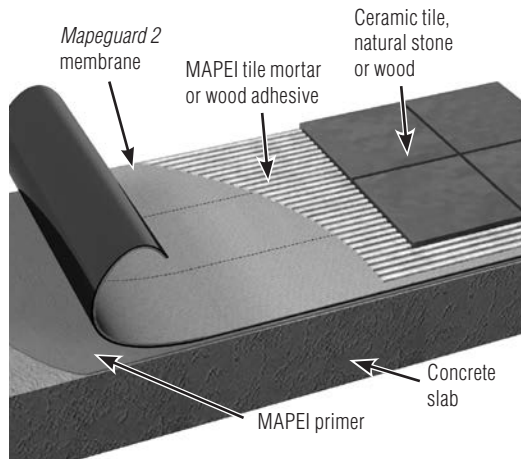
Floor systems, including the framing system and subfloor panels, over which tile will be installed should be in conformance with the IRC [International Residential Code] for residential applications, the IBC [International Building Code] for commercial applications, or applicable building codes.

Note: The owner should communicate in writing to the project design professional and general contractor the "intended use" of the tile installation, in order to enable the project design professional and general contractor to make necessary allowances for the expected live load, concentrated loads, impact loads, and dead loads including the weight of the tile and setting bed. The tile installer shall not be responsible for any floor framing or subfloor installation not compliant with applicable building codes, unless the tile installer or tile contractor designs and installs the floor framing or subfloor.

SURFACE PREPARATION

1. All suitable substrates must be smooth, structurally sound and free of any substance or condition that may reduce or prevent proper adhesion.
2. Unprimed gypsum-based patching or leveling compounds may leave a dusty residue on the surface. Clean the dusty substrate before priming with *MAPEI SM Primer*, *MAPEI SM Primer Fast* or *MAPEI HM Primer*.
3. Do not use chemical means (acid etching or stripping) to prepare approved substrates. Use mechanical methods only.
4. To remove any bond-inhibiting materials, mechanically clean and prepare concrete substrates by diamond-cup grinding or other engineer-approved methods to obtain the International Concrete Repair Institute (ICRI) concrete surface profile (CSP) #2. When concrete requires more mechanical preparation, the profile will typically increase. In such cases, the surface should be made smooth by applying *Mapecem Quickpatch*. For large areas, consider using one of MAPEI's self-leveling underlayments. See the respective Technical Data Sheets (TDSs) for more information. See the "Surface preparation requirements" reference guide in the Tile & Stone Installation Systems section of MAPEI's Website.

PRODUCT APPLICATION



Read all installation instructions thoroughly before installation.

- Apply when substrate and ambient temperatures are between 40°F and 95°F (4°C and 35°C).
- Install *Mapeguard 2* only in conjunction with undiluted *MAPEI SM Primer*, *MAPEI SM Primer Fast* or *MAPEI HM Primer*.
- Allow the primer to dry tacky before *Mapeguard 2* is installed. Confirm that the primer is sufficiently tacky before *Mapeguard 2* is installed; more than one coat of primer may be required to achieve sufficient tack.

A. Individual crack isolation before installing tile

1. *Mapeguard 2* may be applied directly to the substrate area that has existing in-plane cracks (with movement up to 3/8" [10 mm] wide).
2. Cut *Mapeguard 2* to size so that the length and width of the membrane will cover the entire length and width of the crack, plus 3 times the width of the largest tile being used.
3. Center the cut membrane over the crack's width and length. Mark on the floor where the membrane is to start.



4. Set aside precut sections (or entire rolls) of *Mapeguard 2*. Continue with installation instructions at Step 3 below under the section "Full-floor crack isolation."

B. Full-floor crack isolation (or sound reduction)

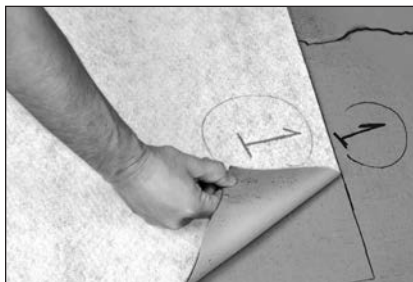
1. To effectively isolate and protect an entire tile installation from existing or future substrate cracks,

Mapeguard 2

Mapeguard 2

and to achieve effective sound reduction, *Mapeguard 2* must be installed over 100% of the substrate that will be covered with ceramic tile or stone. For effective sound reduction, an approved acoustical sealant should fill gaps between the end of the tile or wood and the walls, columns, etc.

2. Unroll *Mapeguard 2* and cut it to size for the substrate to be tiled. For easier handling and installation, each roll may be cut into shorter lengths (such as 10 feet [3.05 m]) before installation. Ensure that all edges or ends of each roll abut edges or ends of other rolls. To ensure a flat surface and proper sound reduction, do not overlap edges or ends from one roll onto another.
3. Number each sheet and mark its starting point on the floor.



4. Set aside precut sections of *Mapeguard 2*.

C. MAPEI SM Primer, MAPEI SM Primer Fast or MAPEI HM Primer application

1. Using a roller or brush, prime the clean, properly prepared substrate with *MAPEI SM Primer*, *MAPEI SM Primer Fast* or *MAPEI HM Primer*, according to its TDS.



2. Allow the primer to dry until tacky (after about 10 to 20 minutes). Confirm that the primer is sufficiently tacky before *Mapeguard 2* is installed; more than one coat may be required to achieve sufficient tack.

D. Mapeguard 2 installation

1. Peel back the first 1" (2.5 cm) of release film from the end of the precut sections or roll.



2. Apply this leading edge at the previously marked starting point to the primed and tacky substrate.
3. Continue removing short amounts of release film and apply the membrane to the substrate. Continue until the substrate is covered with the membrane.
4. To ensure a positive bond between the sticky membrane and substrate, roll a 75-lb. to 100-lb. (34.0-kg to 45.3-kg) roller over the installed membrane.



5. Using a razor knife, remove any wrinkles, or objects trapped beneath the membrane, and then repair.



6. Chalk lines and other layout methods are easily applied over the light-colored *Mapeguard 2* surface.



E. Tile mortar or wood adhesive

- To set tile, use an appropriate MAPEI latex polymer-modified mortar meeting a minimum of ISO 13007 classification C2 and ANSI A118.4 and ANSI A118.11 industry standards. To install wood, use a urethane adhesive. For moisture-sensitive tile or stone, use MAPEI's *Planicrete*® W urethane adhesive.

Note: For installation of tile larger than 18" x 18" (46 x 46 cm), longer mortar-curing times may be required before tile can be grouted or walked on. For shorter turnaround times when installing larger tile, use a MAPEI rapid-set mortar such as *Keraflex*™ RS, *Ultraflex*® LFT™ Rapid, *Ultracontact*™ RS or *Granirapid*® System.

For additional information, instructions and recommended protection, see the respective TDS for the MAPEI mortar or adhesive selected.

F. Glue-down wood-flooring installation (for sound reduction)

- Apply any MAPEI urethane or hybrid-polymer-based (modified-silane) wood adhesive. Follow the wood-flooring manufacturer's instructions and recommended trowel size. Note: Wood by nature will normally expand and contract with variances in ambient relative humidity. Moreover, different species and/or different wood construction of wood floors (e.g., engineered floors) undergo greater or lesser dimensional changes. Because of this, some expansion and contraction of planks used for wood flooring can be expected and therefore will not be considered a defective condition resulting from using MAPEI's membrane.

G. Nail-down wood-flooring installation (for sound reduction)

1. Follow Steps 2, 3 and 4 in the "Full-floor crack isolation" section above.
2. Follow the wood-flooring manufacturer's instructions.

WATERPROOFING

1. Prime the substrate first with *MAPEI SM Primer*, *MAPEI SM Primer Fast* or *MAPEI HM Primer*.
2. Underneath *Mapeguard 2*, use *Mapetape BB* butyl-based waterproofing sealing tape for sealing the seams, wall upturns and corners when waterproofing is desired. Follow all instructions per the TDS for *Mapetape BB*.

VAPOR MANAGEMENT

1. Prime the substrate first with *MAPEI HM Primer*. Do not prime with *MAPEI SM Primer* or *MAPEI SM Primer Fast*.
2. Underneath *Mapeguard 2*, use *Mapetape BB* butyl-based waterproofing sealing tape for sealing the seams, wall upturns and corners when vapor management is desired. Follow all instructions per the TDS for *Mapetape BB*.

EXPANSION JOINTS

1. Do not cover any substrate expansion joints with *Mapeguard 2*, mortar or tiles. Provide for expansion joints as specified per TCNA Method EJ171, or TTMAC Specification Guide 09 30 00, Detail 301MJ.
2. When necessary, cut tiles along both edges of the expansion joints. Do not allow tiles or mortar to overlap the joints.
3. Protect tilework with metal strips (edge metal) along both edges of structural building expansion joints.
4. Install the specified compressible bead and sealant into all expansion and control joints.

GROUTING

- Select an appropriate MAPEI Portland-cement grout meeting ANSI A118.6 or ANSI A118.7 industry standards, or an epoxy grout meeting ANSI A118.3

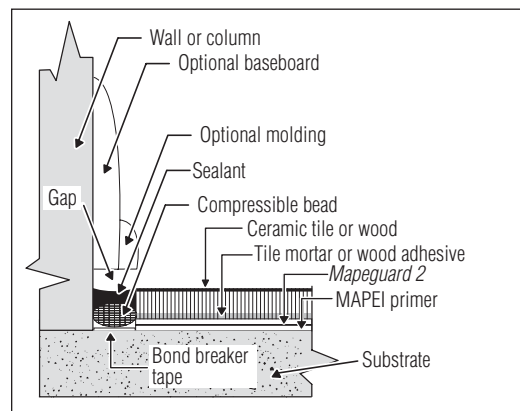
industry standards. For additional information, instructions and recommended protection, see the respective TDS for the MAPEI grout selected.

CLEANUP

- Remove excess primer with mineral spirits.

PROTECTION

- Provide for dry, heated storage on site and deliver materials at least 24 hours before tilework begins.
- Do not store *Mapeguard 2* in direct sunlight.
- Protect *Mapeguard 2* from spills, contamination and damage before and during tilework to ensure a positive bond with the mortar.
- Always provide proper protection of finished floors when heavy equipment (such as fork lifts or scissor lifts) is to be used over installations with sheet membrane underlayments during construction.



Mapeguard 2

Product Performance Properties (for Mapeguard 2)

ANSI A118.12 (Crack-Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation)	4.1 – Fungus and micro-organism resistance:
	4.1.2 – 14-day incubation: Pass
	5.1 – Shear strength to ceramic tile and cement mortar
	5.1.6 – After accelerated aging: Pass
	5.2 – Point load test:
	5.2.3 – Point load resistance after 28-day cure: Pass
	5.3 – Robinson floor test: MAPEI Corporation and MAPEI Inc. certify that the following Robinson tests (for tile) were conducted and warrants the systems noted.
ANSI A118.10 (Specifications for load bearing, bonded, waterproof membranes for thin-set ceramic tile and dimension stone installations): Used with <i>Mapetape BB</i>	4.5 Waterproofness: Pass
	4.2 Seam Strength: Pass
ANSI A118.12 (Crack-Isolation Membranes for Thin-Set Ceramic Tile and Dimension Stone Installation)	5.4 System crack resistance test:
	5.4.9 Standard performance: Exceeds
	5.4.9 High performance: Exceeds
ASTM E96 (Standard test methods for water vapor transmission of materials, method A): Used with <i>Mapetape BB</i>	Vapor Impermeable (0.0 perms)

Shelf Life and Product Characteristics (for Mapeguard 2)

Thickness	0.04" or 40 mils (1 mm)
Maximum crack movement capacity	3/8" (10 mm) wide, in-plane
Fabric color	White
Shelf life	1 year when stored in a dry area in original shipping container at between 40°F and 95°F (4°C and 35°C)

	ASTM C627 Service Rating (Robinson)		
	Residential Applications	Commercial Applications	Industrial Applications
Actual rating	Extra heavy rating	Extra heavy rating	Extra heavy rating
MAPEI grout	<i>Keracolor® S</i>	<i>Ultracolor® Plus FA</i>	<i>Kerapoxy® IEG</i>
12" x 12" (30 x 30 cm) unglazed solid-body porcelain (with 1/4" [6 mm] joints)	Yes	Yes	Yes
MAPEI mortar	<i>Ultraflex 2</i>	<i>Kerabond/Keralastic™</i>	<i>Granirapid</i>
<i>Mapeguard 2</i>	Yes	Yes	Yes
<i>MAPEI SM Primer, MAPEI SM Primer Fast or MAPEI HM Primer</i>	Yes	Yes	Yes
6" (15 cm) concrete slab	Yes	Yes	Yes

ASTM Standards for Sound Reduction; MAPEI Corporation and MAPEI Inc. certify that the following sound tests (for tile and wood flooring) were conducted and results supplied by NGC Testing Services, Buffalo, NY

Mapeguard²

		Sound-Reduction Ratings (Over 6" [15 cm] Concrete Slab)			
		Solid Porcelain Tile ¹		Engineered Oak Flooring ²	
ASTM Test Methods	Type of Sound Transmission Measurement	Suspended Ceiling ³	No Suspended Ceiling ⁴	Suspended Ceiling ³	No Suspended Ceiling ⁴
E492-04 (IIC)	Impact sound	64	47	71	51
E2179-03 (Delta IIC)	Impact sound	N/A	16	N/A	N/A
E90-04 (STC)	Airborne sound	66	52	66	51

For sound-reduction ratings, higher numbers are preferred over lower numbers.

¹ 12" x 12" (30 x 30 cm) solid-body, unglazed, porcelain tile installed with Ultraflex 2 mortar (with 1/4" x 3/8" x 1/4" [6 x 10 x 6 mm] square-notched trowel) and Keracolor S grout

² 3/8" x 3" (10 mm x 7.5 cm) engineered, prefinished oak flooring installed with Ultrabond ECO 980 (with 3/16" x 5/32" [4.5 x 4 mm] sawtooth trowel)

³ Drywall grid suspension system consisting of 5/8" (16 mm) Type X gypsum board (2.3 lbs./sq. ft. [11.2 kg/m²]) attached with screws 12" (30 cm) on center to suspended grid suspension system; and 12" (30 cm) plenum with 3-1/2" (8.9 cm) lay-in fiberglass insulation (0.16 lbs./sq. ft. [0.78 kg/m²])

⁴ Bare concrete ceiling in room below

Packaging

Product	Size	Coverage*
MAPEI SM Primer	1 U.S. gal. (3.79 L)	300 to 350 sq. ft. (27.9 to 32.5 m ²)
MAPEI SM Primer	5 U.S. gals. (18.9 L)	1,500 to 1,750 sq. ft. (139 to 163 m ²)
MAPEI SM Primer Fast	1 U.S. gal. (3.79 L)	300 to 350 sq. ft. (27.9 to 32.5 m ²)
MAPEI HM Primer	Jug: 1 U.S. gal. (3.79 L)	250 to 350 sq. ft. (23.2 to 32.5 m ²)
Mapeguard 2	39.4" x 68.6' (1 x 20.9 m)	225 sq. ft. (20.9 m ²)

* Coverage shown is for estimating purposes only. Actual jobsite coverage depends on substrate conditions, type of roller or brush used.

Primer Reference Chart

	Interior applications			Exterior applications		
	Below-grade	On-grade	Above-grade	Below-grade	On-grade	Above-grade**
MAPEI HM Primer	•	•	•	•	•	•
MAPEI SM Primer		•	•			•
MAPEI SM Primer Fast		•	•			•

** In appropriately sloped exterior environments

Mapeguard 2



Refer to the SDS for specific data related to health and safety as well as product handling.

For information on MAPEI's commitment to sustainability and transparency, as well as how MAPEI products may contribute to green building standards and certification systems, contact sustainability_USA@mapei.com (USA) or sustainability-durabilite@mapei.com (Canada).

LEGAL NOTICE

The contents of this Technical Data Sheet ("TDS") may be copied into another project-related document, but the resulting document shall not supplement nor replace requirements per the TDS in effect at the time of the MAPEI product installation. For the most up-to-date TDS and warranty information, please visit our website at

www.mapei.com. **ANY ALTERATIONS TO THE WORDING OR REQUIREMENTS CONTAINED IN OR DERIVED FROM THIS TDS SHALL VOID ALL RELATED MAPEI WARRANTIES.**

Before using, the user must determine the suitability of our products for the intended use,

and the user alone assumes all risks and liability. **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.**

We proudly support the following industry organizations:



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