Ultraflex LHT SG

Standard, Large-and-Heavy-Tile Mortar with Polymer

DESCRIPTION

Ultraflex LHT® SG is a standard-grade, nonsag, nonslump, polymer-modified, large-and-heavy-tile mortar and thin-set mortar for interior/exterior installations on floors, walls and countertops. It is used to install large-format and heavy tile/stone, including porcelain tile, heavy-ribbed-back tile, brick pavers, dimensional tile and natural-stone tile. *Ultraflex LHT SG* is designed for use at 3/32" to 1/2" (2.5 to 12 mm) thickness to give better support under large-format tile. This mortar is formulated with Easy Glide Technology™ for ease of application and good adhesion to the substrate and tile.

FEATURES AND BENEFITS

- Nonslump for large-format and heavy tile/stone in floor applications
- Nonsag for large-format and heavy tile and stone in wall applications
- For thicker bond coats from 3/32" to 1/2" (2.5 to 12 mm)
- Smooth and creamy consistency for easy application
- Polymer-enriched for good performance

INDUSTRY STANDARDS AND APPROVALS

- ISO 13007: When mixed with water, classification C2TE; when mixed with *Keraply*, classification C2ES1
- ANSI: Exceeds ANSI A118.4HET when mixed with water, and ANSI A118.11 when mixed with undiluted *Keraply*

WHERE TO USE

- Most interior/exterior residential installations on floors, walls and countertops
- Most interior/exterior commercial installations on floors and countertops
- Most interior commercial installations on walls
- Installation of ceramic and porcelain tile; cultured stone; quarry tile; pavers; Saltillo tile; dimensional tile; and most types of marble, granite and natural stone

When mixed with water:
- Concrete (cured at least 28 days)
- Masonry cement block, brick, cement mortar beds, render coats and leveling coats
- Cement backer units (CBUs) – see manufacturer's installation guidelines
- Gypsum wallboard and plaster – interior walls in dry areas only (priming may be required). See the "Surface Preparation Requirements" reference guide in the Tile & Stone Installation Systems section of MAPEI's Website.

When mixed with undiluted *Keraply*:
- All of the uses above, plus the following:
- Existing ceramic and porcelain tile, quarry tile and pavers (interior and dry conditions only)
- For use over exterior-grade plywood
- Vinyl composition tile (VCT), cutback residue and non-cushioned sheet vinyl (interior only)
- MAPEI waterproofing, crack-isolation, sound-reduction, heat and uncoupling membranes

LIMITATIONS

- Use only at temperatures between 40°F and 95°F (4°C and 35°C).
- Do not use for moisture-sensitive stone (green marble, some limestone and some granite), agglomerate tiles or resin-backed tiles. Instead, use suitable epoxy or urethane adhesives. See the respective Technical Data Sheets for more information. Regarding installations of resin-backed tile, contact MAPEI's Technical Services Department.
- Do not use over dimensionally unstable substrates such as hardwood flooring, oriented strand board (OSB), substrates containing asbestos, or metal. See the "Suitable Substrates" section below.
- To use directly over gypsum-based patching or leveling substrates, apply a suitable sealer/primer before use. See the technical bulletin "Tiling over gypsum" in the Tile & Stone Installation Systems section of MAPEI's Website.
- Large-and-heavy-tile mortars are not designed to correct uneven floors. Substrates must be flat and level (according to substrate flatness requirements in ANSI A108.02) before the installation of large-format tile.
- Installations over nonporous surfaces such as waterproofing membranes and existing tile, when *Ultraflex LHT SG* is mixed as required with *Keraply*, may require extended setting/curing times.
- For light-colored and translucent natural stone, a white mortar is recommended.
- Do not use *Ultraflex LHT SG* where the substrate deflection exceeds L/360 for tile and L/720 for stone tile under live or dead loads.
- For areas subject to severe freeze/thaw conditions, mixing with MAPEI liquid latex additive is required.
- Do not use for installations subject to water immersion (such as pools and spas).
- Dimensionally weak stone (limestone, travertine) is limited to thin-set applications only.

SUITABLE SUBSTRATES

When mixed with water:

- Concrete (cured at least 28 days)
- Masonry cement block, brick, cement mortar beds, render coats and leveling coats
- Cement backer units (CBUs) – see manufacturer's installation guidelines
- Gypsum wallboard and plaster – interior walls in dry areas only. Priming may be required. See the technical bulletin "Tiling over gypsum" in the Tile & Stone Installation Systems section of MAPEI's Website.

When mixed with *Keraply*:

- Existing ceramic and porcelain tile, quarry tile and pavers (interior and dry conditions only)
- Plywood underlayments must be a Group 1 exterior-grade plywood CC-plugged or better, conforming to APA classification and U.S. Product Standard PS 1-95 or a "SELECT" or (SEL-TF) CANPLY classified exterior-grade plywood conforming to CSA-0121 standard for Douglas fir for direct-bond applications (interior, residential and light commercial floors and countertops in dry conditions only).
- VCT, cutback residue and non-cushioned sheet vinyl (interior only)
- MAPEI waterproofing, crack-isolation, sound-reduction and uncoupling membranes

SURFACE PREPARATION

- All substrates should be structurally sound, stable, dry, clean and free of any substance or condition that may reduce or prevent proper adhesion.
- See the "Surface preparation requirements" reference guide in the Tile & Stone Installation Systems section of MAPEI's Website.

MIXING

Before starting, take appropriate safety precautions. See the Safety Data Sheet for details.

1. Pour clean water into a clean mixing container. For nonsag/nonslump applications, use 6.5 to 7.5 U.S. qts. (6.15 to 7.10 L) of water, or 2 U.S. gals. (7.57 L) of undiluted *Keraply*.
2. For MAPEI uncoupling, waterproofing and peel-and-stick membranes, use 2 U.S. gals. (7.57 L) of undiluted *Keraply*.
3. Gradually add 50 lbs. (22.7 kg) of *Ultraflex LHT SG* powder while slowly mixing.
4. Use a low-speed mixing drill (about 300 rpm), with an angled cross-blade mixer or spiral mixer. Mix thoroughly until mixture becomes a smooth, homogenous, lump-free paste. Avoid prolonged mixing.
5. Let mixture stand ("slake") for 5 minutes.
6. Remix.
7. If mixture becomes heavy or stiff, remix it without adding more liquid.

PRODUCT APPLICATION

Read all installation instructions thoroughly before installation.

1. Choose a notched trowel (see the "Approximate Coverage" chart below) with sufficient depth to achieve more than 80% mortar contact to both the tile and substrate for all interior applications, and more than 95%

for exterior installations and wet applications. It may be necessary to back-butter tiles in order to meet these requirements. (Refer to ANSI A108.5 specifications, and TCNA Handbook and TTMAC guidelines.)

2. With pressure, apply a coat by using the trowel's flat side to key the mortar into the substrate.

3. Apply additional mortar, combing it in a single direction parallel to the tile's shortest dimension, with the trowel's notched side. Spread only as much mortar as can be tiled before the product skins over. Open time can vary with jobsite conditions.

4. Place the tiles firmly into the wet mortar. Push the tiles back and forth in a direction perpendicular to trowel lines, to collapse the mortar ridges and to help achieve maximum coverage. Ensure proper contact between the mortar, tile and substrate by periodically lifting a few tiles to check for acceptable coverage.

5. Remove excess mortar from the joint areas so that at least 2/3 of the tile depth is available for grouting (see ANSI A108.10 guidelines).

EXPANSION AND CONTROL JOINTS

- Provide for expansion and control joints as specified per TCNA Method EJ171 or TTMAC Specification Guide 09 30 00, Detail 301MJ. Do not cover expansion joints with mortar.

CLEANING

- Clean tools and tile while the mortar is fresh, using only water.

PROTECTION

- Do not disturb the installation, allow light traffic or grout tiles for at least 24 to 48 hours.
- Protect the installation from general traffic for at least 72 hours, and from heavy traffic for at least 7 days.
- Protect the installation from rain for 72 hours, and from freezing for 21 days.

Note: When working in cooler temperatures, protect tilework for an extended time for this dry-set mortar to cure before grouting and/or allowing traffic.

ISO 13007 Classification

when mixed with water

Classification Code	Classification Requirement
C2 (cementitious, improved adhesion)	≥ 145 psi (1 MPa) after standard aging, heat aging, water immersion and freeze/thaw cycles
T (vertical slip resistance)	≤ 0.019" (0.5 mm)
E (extended open time)	≥ 72.5 psi (0.5 MPa) after 30 minutes

ISO 13007 Classification

when mixed with Keraply

Classification Code	Classification Requirement
C2 (cementitious, improved adhesion)	≥ 145 psi (1 MPa) after standard aging, heat aging, water immersion and freeze/thaw cycles
E (extended open time)	≥ 72.5 psi (0.5 MPa) after 30 minutes
S1 (normal deformation of mortar)	≥ 0.1" (2.5 mm)

ANSI Specifications

when mixed with water

Test Method	Specification Standard	Test Results
ANSI A118.4 – shear strength, impervious ceramic (porcelain) mosaics	> 200 psi (1.38 MPa) at 28 days	255 to 315 psi (1.76 to 2.17 MPa)
ANSI A118.4 – shear strength, glazed wall tile	> 300 psi (2.07 MPa) at 28 days	325 to 445 psi (2.24 to 3.07 MPa)
ANSI A118.4 – shear strength, quarry tile to quarry tile	> 150 psi (1.03 MPa) at 28 days	370 to 515 psi (2.55 to 3.55 MPa)
ANSI A118.4H – mortar for large and heavy tile	ASTM C627 Robinson Floor Test lippage change < 1/64" (0.4 mm)	Pass
ANSI A118.4E – extended open time	≥ 72.5 psi (0.5 MPa) at 30 minutes	Pass
ANSI A118.4T – sag on vertical surfaces	< 0.02" (0.5 mm) at 20 minutes	Pass

ANSI Specification

when mixed with Keraply

Test Method	Specification Standard	Test Results
ANSI A118.11 – shear strength, quarry tile to plywood	> 150 psi (1.03 MPa) at 28 days	150 to 190 psi (1.03 to 1.31 MPa)

Shelf Life and Product Characteristics

before mixing

Shelf life	1 year when stored in original, unopened packaging at 73°F (23°C)

Physical state	Powder
Colors	White and gray

Application Properties

at 73°F (23°C) and 50% relative humidity

Mixing ratio	6.5 to 7.5 U.S. qts. (6.15 to 7.10 L) of water, or 2 U.S. gals. (7.57 L) of *Keraply*, per 50 lbs. (22.7 kg) of *Ultraflex LHT SG*
Open time*	30 minutes
Pot life*	> 2 hours
Time before grouting (walls)*	8 to 16 hours
Time before grouting (floors)*	24 hours
Application temperature range	40°F and 95°F (4°C and 35°C)
VOC content	0 g per L

Open time, pot life and time before grouting vary based on jobsite conditions.

Packaging

Size and Color
Bag: 50 lbs. (22.7 kg), white
Bag: 50 lbs. (22.7 kg), gray

Approximate Coverage**

per 50 lbs. (22.7 kg)

Typical Trowel	Coverage
1/4" x 1/4" x 1/4" (6 x 6 x 6 mm), square-notch	75 to 90 sq. ft. (6.97 to 8.36 m²)
1/4" x 3/8" x 1/4" (6 x 10 x 6 mm), square-notch	55 to 65 sq. ft. (5.11 to 6.04 m²)
1/2" x 1/2" x 1/2" (12 x 12 x 12 mm), square-notch	38 to 45 sq. ft. (3.53 to 4.18 m²)
3/4" x 9/16" x 3/8" (19 x 14 x 10 mm), U-notch	25 to 30 sq. ft. (2.32 to 2.79 m²)

*** Trowel dimensions are width/depth/space. Actual coverage will vary according to substrate profile and tile type.*

RELATED DOCUMENTS

- Reference guide: "Surface preparation requirements" for tile and stone installation systems***
- Technical bulletin: "Tiling over gypsum"***

*** At www.mapei.com

ADDITIONAL INFORMATION

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).

WARNING

The test results shown in the TECHNICAL DATA table were obtained in compliance with test methods and curing cycles, if applicable, defined in the industry standards referenced on the Technical Data Sheet. Please note that the use of test procedures or methods other than those indicated in the table could lead to different values and that, in such cases, any liability of our company is excluded.

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