



LHT PLUS™

DS-109.0-0318

**Globally Proven
Construction Solutions**



1. PRODUCT NAME

LHT™ PLUS

2. MANUFACTURER

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3. PRODUCT DESCRIPTION

A polymer modified large and heavy tile mortar specifically formulated to provide a one-step installation for large format ceramic tile, porcelain tile, marble and stone on floors. Approved for use over exterior glue plywood for interior installations.

Advantages

- Exceeds ANSI A118.4 and ANSI A118.11
- Supports heavy tile and stone, reducing lippage problems.
- For interior and exterior floor applications
- Build up to 3/4" (19 mm) without shrinkage or set-up time problems
- Ideal for submerged applications when mixed with 3701 Mortar Admix

Suitable Substrates

- Concrete
- Cement Mortar Beds
- Ceramic Tile And Stone
- Cement Plaster
- Cement Backer Board**
- Concrete Masonry
- Brick Masonry
- Cement Terrazzo
- Properly Prepared Vinyl Tile*
- Non-Water Soluble Cut-Back Adhesive*

- Exterior glue plywood*
- HYDRO BAN® Board*** (floors only)

*Interior use only

**Consult cement backer board manufacturer for specific installation recommendations and to verify acceptability for exterior use.

***Consult product datasheet (DS-040.0) for specific installation recommendations

Packaging

50 lb (22.7 kg) bag; 56 bags per pallet

Colors: Grey & White

Coverage

Trowel Size	ft ²	m ²
1/2" x 1/2" (12 mm x 12 mm) notched trowel	40 – 47	3.7 – 4.4

Shelf Life

Advanced plastic bag provides two (2) year shelf life (non-rapid versions only).

***High humidity will reduce the shelf life of bagged product.

Limitations

- Do not install tile/stone when surface temperatures are below freezing (32°F [0°C]).
- For installations in submerged applications, mix with 3701 Mortar Admix. Wait 14 days after the final grouting period before filling water features with water at 70°F (21°C).
- Adhesives/mastics, mortars and grouts for ceramic tile, pavers brick and stone are not designed as replacements for waterproofing membrane; use a LATICRETE® Waterproofing Membrane (see Section 10 FILING SYSTEMS).
- DO NOT bond to particle board, luan, Masonite® or hardwood surfaces.

Note: Surfaces must be structurally sound, stable and rigid enough to support ceramic/stone tile, thin brick and similar finishes. Substrate deflection under all live, dead and impact loads, including concentrated loads, must not exceed L/360 for thin bed ceramic tile/brick installations or L/480 for thin bed stone installations where L=span length.

Cautions

Consult SDS for more safety information.

- Contains portland cement and silica sand. Causes skin irritation and serious eye damage. Wear protective gloves and eye protection. In case of contact, flush thoroughly with water.
- Do not take internally. Silica sand may cause cancer, respiratory irritation, or serious lung problems. Do not breathe. Wear a respirator in dusty areas.

- Use LATAPOXY® 300 Adhesive for installing green marble, resin backed tile or stone or water sensitive natural stone and agglomerates.
- For light-colored marble and stone use LHT PLUS white.
- Keep out of reach of children.

4. TECHNICAL DATA

VOC/LEED Product Information

Total VOC Content pounds/gallon (grams/liter) of product in unused form is 0.00 g/L

Applicable Standards

ANSI A118.4, A118.11



This product has been certified for Low Chemical Emissions (ULCOM/GG UL2818) under the UL GREENGUARD Certification Program for Chemical Emissions for Building Materials, Finishes and Furnishings (UL 2818 Standard) by UL Environment.

Performance Properties

Test	Test Method	Specification	Results
Porcelain Tile Shear Strength 28 day	ANSI A118.4-7.2.5	>200 psi (1.4 MPa)	300-400 psi (2.1-2.8 MPa)
Glazed Wall Tile Shear Strength 7 day	ANSI 118.4-7.1.2	>300 psi (2.1 MPa)	300-400 psi (2.1-2.8 MPa)
Shear Bond, Quarry Tile/Plywood, 28 day	ANSI A118.11 4.1.1.2	>150 psi (1.0 MPa)	155 – 175 psi (1.1 – 1.2 MPa)

Working Properties

LHT PLUS mixed with water

Open Time	20 minutes
Pot Life	3–4 hours
Time to Heavy Traffic	Minimum 24 hours @ 70°F (24°C)
Wet Density	13.3 lbs/gal (1.6 g/L)

Specifications subject to change without notification. Results shown are typical but reflect test procedures used. Actual field performance will depend on installation methods and site conditions.

5. INSTALLATION

Surface Preparation

All surfaces should be between 40°F (4°C) and 90°F (32°C) and structurally sound, clean and free of all dirt, oil, grease, paint, concrete sealers or curing compounds. Rough or uneven concrete surfaces should be made smooth with Latex Portland Cement Underlayment to provide a wood float (or better) finish. Dry, dusty concrete slabs or masonry should be dampened and excess water swept off. Installation may be made on a damp surface. New concrete slabs shall be damp cured and 28 days old before application. There is no minimum cure time for concrete slabs when mortar is mixed with latex additive.

All slabs must be plumb and true to within 1/4" (6 mm) in 10 ft (3 m). Expansion joints shall be provided through the tile work from

all construction or expansion joints in the substrate. Follow ANSI specification A108.01-3.7 "Requirements for Movement Joints: Preparations by Other Trades" or TCNA detail EJ-171 "Movement Joints—Vertical & Horizontal". Do not cover expansion joints with mortar.

1. Installer must verify that deflection under all live, dead and impact loads of interior plywood floors does not exceed industry standards of L/360 for ceramic tile and brick or L/480 for stone installations where L=span length.

2. Minimum construction for interior plywood floors.

SUBFLOOR: 5/8" (16 mm) thick exterior glue plywood, either plain with all sheet edges blocked or tongue and groove, over bridged joints spaced 16" (400 mm) o.c. maximum; fasten plywood 6" (150 mm) o.c. along sheet ends and 8" (200 mm) o.c. along intermediate supports with 8d ring-shank, coated or hot dip galvanized nails (or screws); allow 1/8" (3 mm) between sheet ends and 1/4" (6 mm) between sheets edges; all sheet ends must be supported by a framing member; glue sheets to joints with construction adhesive.

UNDERLAYMENT: 5/8" (16 mm) thick exterior glue plywood fastened 6" (150 mm) o.c. along sheet ends and 8" (200 mm) o.c. in the panel field (both directions) with 8d ring-shank, coated or hot dip galvanized nails (or screws); allow 1/8" (3 mm) to 1/4" (6 mm) between sheets and 1/4" (6 mm) between sheet edges and any abutting surfaces; offset underlayment joints from joints in subfloor and stagger joints between sheet ends; glue underlayment to subfloor with construction adhesive. Refer to Technical Data Sheet 152 Bonding Ceramic Tile, Stone or Brick Over Wood Floors for complete details.

Mixing

Mix one 50 lb (22.7 kg) bag of LHT PLUS™ with 4.6 to 4.9 qts (4.4 to 4.6 L) of water. Place clean, potable water into a clean pail. Add LHT PLUS powder. Mix by hand or with a slow speed mixer to a smooth, trowelable consistency. Allow mortar to slake 5–10 minutes. Adjust consistency if necessary. Remix and apply with the proper sized notched trowel.

Application

Apply mortar to substrate with flat side of trowel, pressing firmly to work into surface. Comb on additional mortar with the notched side, use 1/2" x 1/2" (12 mm x 12 mm) or 3/4" (18 mm) half loop trowel. Spread as much mortar as can be covered with tile in 15–20 minutes. Back butter large > 8" x 8" (>200 mm x 200 mm) irregular backed tiles to provide full bedding and firm support. Place tiles into wet, sticky mortar and beat in using a beating block and rubber mallet to embed tile and to adjust level. Check mortar for complete coverage periodically removing a tile and inspecting bedding mortar transfer onto back of tile. If mortar is skimmed over (not sticky) remove and replace with fresh mortar.

Grouting

Grout installation after a minimum of 24 hours curing time at 70°F (21°C). Grout with SPECTRALOCK® PRO Premium Grout[†], SPECTRALOCK® PRO Grout[†], PERMACOLOR® SELECT, PERMACOLOR Select NS or PERMACOLOR Grout[†].

Cold Weather Note: The setting of portland cement mortars and grouts are retarded by low temperatures. Protect finished work for an extended period when installing in cold weather. Do not set tile

when surface temperature is below freezing or when substrate is frozen.

DS 116.0: PERMACOLOR Select NS

Hot Weather Note: The evaporation of moisture in portland cement mortars is accelerated by hot, dry conditions. Apply to dampened surfaces and protect freshly spread mortar and finished work when installing in hot temperatures.

Cleaning

Clean tools and tile work with water while mortar is fresh.

6. AVAILABILITY AND COST

Availability

LATICRETE® and LATAPOXY® materials are available worldwide.

For Distributor Information, Call:

Toll Free: 1.800.243.4788

Telephone: +1.203.393.0010

For on-line Distributor information, visit LATICRETE at www.laticrete.com.

Cost

Contact a LATICRETE Distributor in your area.

7. WARRANTY

See 10. FILING SYSTEM

DS 230.13: LATICRETE Product Warranty

DS 230.05: LATICRETE 5 Year System Warranty

8. MAINTENANCE

LATICRETE and LATAPOXY grouts require routine cleaning with a neutral pH soap and water. All other LATICRETE and LATAPOXY materials require no maintenance but installation performance and durability may depend on properly maintaining products supplied by other manufacturers.

9. TECHNICAL SERVICES

Technical Assistance

Information is available by calling the LATICRETE Technical Service Hotline:

Toll Free: 1.800.243.4788, ext. 235

Telephone: +1.203.393.0010, ext. 235

Fax: +1.203.393.1948

Technical and Safety Literature

To acquire technical and safety literature, please visit our website at www.laticrete.com.

10. FILING SYSTEM

Additional product information is available on our website at www.laticrete.com. The following is a list of related documents:

- DS 230.13: LATICRETE Product Warranty
- DS 230.05: LATICRETE 5 Year System Warranty
- DS 236.0: 9235 Waterproofing Membrane
- DS 250.0: PERMACOLOR® Grout[†]
- DS 281.0: PERMACOLOR Select
- DS 633.0: LATAPOXY 300 Adhesive
- DS 663.0: HYDRO BAN®
- DS 681.0: SPECTRALOCK® PRO Premium Grout[†]
- DS 685.0: SPECTRALOCK PRO Grout[†]
- TDS 152: Bonding Ceramic Tile, Stone or Brick Over Wood Floors

[†] United States Invention Patent No.: 6,881,768 (and other Patents).

[^] United States Invention Patent No.: 6,784,229 B2 (and other Patents)