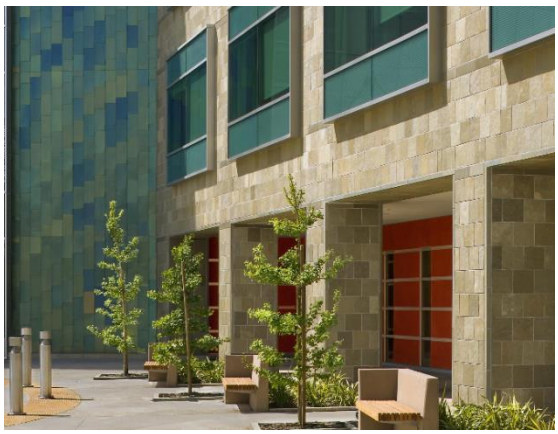
Technical Data Sheet

MYK LATICRETE

LATICRETE® 345 Super Flex

Highly Deformable Tile Adhesive



Multipurpose highly polymer modified and very highly deformable adhesive for installation of very large format tiles on most of the substrates to accommodate movements. It offers exceptionally good handling properties with good sag and slump resistance. It can be applied up to 18 mm bed thickness.

Application

Designed to suit both interior and exterior floor/wall installations of variety of types of tiles/stones such as ceramic tile, vitreous, semi-vitreous tile, paper faced glass mosaic tiles, precast terrazzo and natural stones. Suitable for installing tiles over concrete and on a variety of substrates. Good underwater shear bond allows this product to be used for wet areas like swimming pools, sauna, water bodies and washrooms. Befitting for tile on tile applications.

Features / Benefits

- Very High deformability – more than 5 mm
- High strength with high polymer modification
- Medium bed adhesive with Extended open time
- Non sag & non slump formula for very large format tiles in wall and floor systems
- Good resistance against crack propagation
- Good impact resistance- provides cushion effect to tiles & Stones
- Exceeds ANSI A118.4 shear bond strength requirements
- Complies with EN / ISO with a C2TES2 classification
- Exceeds IS 15477 – Type 4/TS2 Adhesive standards

Substrates

- Concrete & Concrete Masonry
- Shear wall Concrete (MIVON, etc.), VDF, Precast concrete
- Cement Mortar Beds
- Cement Plaster
- Ceramic tile, Vitrified Tile and Natural Stone
- Glass mosaic tile – Paper faced
- Brick Masonry
- Cement Backer Board**
- Cement Terrazzo
- Calcium Silicate Board** (For dry areas)
- Gypsum Wallboard** (For dry areas)

**Consult the backer board manufacturer's data sheet for the specific recommendations and load bearing capacity of specific board intended for use.

Suitable Tile Types

- Very large format tiles
- Vitreous, semi vitreous or non- vitreous tiles; ceramic; quarry, cement body tile
- Brick
- Cement based precast terrazzo
- Natural stone tile of very large format

Certifications

IS 15477 Type: 4/TS2 EN: C2ETS2

Member of Indian Green Building Council

Approved American National Standards ANSI A118.4ET

TECHNICAL

Performance Properties:
LATICRETE® 345 Super Flex Adhesive mixed with water
Applicable Standards:
ANSI A118.4; EN 12004 & ISO 13007; IS15477:2019

ANSI Data		
Property: Test method	**Requirement**	**Typical Values**
Open Time (30 Minutes at 28 days): ANSI A118.4 Clause – 5.3	≥ 75 psi (0.50 MPa)	30 Minutes
Sag: ANSI A118.4- Clause 6.0	≤ 0.02 Inches (0.50 mm)	0.008 – 0.012 Inches (0.20-0.30 mm)
Glazed wall tile Shear Strength		
7 Days: ANSI A118.4 – Clause 7.1.2	> 300 psi (2.07 MPa)	350- 400 psi (2.40 MPa-2.75 MPa)
7 Days Water immersion: ANSI A118.4- Clause 7.1.3)	> 200 psi (1.38 MPa)	250-300 psi (1.72 MPa-2.07 MPa)
Porcelain Mosaic Tile Shear Strength		
1 Day: ANSI A118.4 – Clause 7.2.2	> 75 psi (0.50 MPa)	100 - 175 psi (0.69 – 1.20 MPa)
7 Days: ANSI A118.4 – Clause 7.2.3	>200 psi (1.38 MPa)	250 - 350 psi (1.72 – 2.40 MPa)
7 Days Water immersion: ANSI A118.4 – Clause 7.2.4	>150 psi (1.03 MPa)	200 - 300 psi (1.38 – 2.07 MPa)
28 Days: ANSI A118.4 – Clause 7.2.5	>200 psi (1.38 Mpa)	300 - 400 psi (2.06 – 2.76 MPa)
28 Days: W/ Freeze-Thaw cycling. ANSI A118.4 – Clause 7.2.5	>175 psi (1.20 MPa)	275 - 325 psi (1.89 – 2.23 MPa)
12 Weeks: ANSI A118.4 – Clause 7.2.7	> 200 psi (1.38 MPa)	315 - 430 psi (2.17 – 2.96 MPa)
Quarry Tile Shear Strength		
28 Days: ANSI A118.4 – Clause 7.3.2	>150 psi (1.03 MPa)	300 - 350 psi (2.06 – 2.40 MPa)
28 Days: W/ Freeze-Thaw cycling. ANSI A118.4 – Clause 7.3.3	>100 psi (0.69 MPa)	200 - 250 psi (1.37 – 1.72 MPa)

The adhesive mortar conforms to ANSI A118.4ET

EN / ISO Data		
Property: Test Method	**Requirement**	**Typical Values**
Open Time: EN 1346	≥ 0.50 N/mm²	30 Minutes
Slip Resistance: EN 1308	≤ 0.50 mm	0.20 - 0.30 mm
Tensile Adhesion Strength		
Initial: EN 1348 – Clause 8.2	≥1.00 N/mm²	1.75 – 2.25 N/mm²
After Water Immersion: EN 1348 – Clause 8.3	≥1.00 N/mm²	1.50 – 1.75 N/mm²
Heat Ageing: EN 1348 – Clause 8.4	≥1.00 N/mm²	1.50 – 2.00 N/mm²
Freeze- Thaw: EN 1348 – Clause 8.5	≥1.00 N/mm²	1.50 – 2.00 N/mm²
Transverse Deformation: EN12002	> 5.00 mm	> 5.20 mm

The adhesive mortar conforms to EN12004 / ISO 13007 as C2TES2

IS 15477: Type -4		
Property: Test method	**Requirement**	**Typical Values**
Shear Adhesion strength		
Dry Conditions (28 days) – Annex B (Clause 5.2)	≥ 1.50 N/mm²	2.00 – 3.00 N/mm²
Heat Ageing Conditions (14 Days Std + 14 Days Oven) – Annex B (Clause 5.2)	≥ 1.00 N/mm²	1.30 – 2.00 N/mm²
Wet Conditions (7 Days Std + 21 Days Water) – Annex B (Clause 5.2)	≥ 1.00 N/mm²	1.30 – 1.55 N/mm²
Tensile Adhesion Strength		
Dry Conditions (28 days) – Annex A (Clause 5.1)	≥ 1.50 N/mm²	1.75 – 2.25 N/mm²
Wet Conditions (7 Days Std + 21 Days Water) – Annex A (Clause 5.1)	≥ 1.00 N/mm²	1.50 – 1.75 N/mm²

The Adhesive mortar conforms to IS 15477: Type 4/TS2 Adhesive

Packaging:

20kg & 50kg bags

Colour:

Grey / White

Coverage details (per 20kg bag):

Trowel Size	Average Bed Thickness	Minimum Coverage	Maximum Coverage
6 x 6 mm Square Notch	3 mm	55 ft^2/5.48 m^2	61 ft^2/5.67 m^2
9 x 9 mm Square Notch	4.5 mm	36 ft^2/3.35 m^2	40 ft^2/3.71 m^2
12 x 12 mm Square Notch	6 mm	28 ft^2/2.60 m^2	31 ft^2/2.88 m^2
18 x 18 mm Square Notch	9 mm	18 ft^2/1.67 m^2	20 ft^2/1.86 m^2
6 mm surface levelling + 12 x 12 mm Square Notch	12 mm	14 ft^2/1.30 m^2	16 ft^2/1.49 m^2

*Coverage will vary depending on type and size of tile, substrate smoothness and unevenness

Working Properties at 70° F (21°C)

LATICRETE®345 Super Flex Adhesive mixed with Water

Open Time	30 minutes
Adjustability Time	45 minutes
Pot Life	4 hours
Time to Foot Traffic	20 - 28 hours

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

INSTALLATION

To achieve a successful installation of very large format/ thin tiles, adhere to the following recommendation:

- Proper surface preparation
- Proper material mixing & application
- Use of a proper edge-leveling system
- Beating of tile into mortar bed using a Rubber Mallet

Surface Preparation:

All surfaces should be between 50°F (10°C) and 100°F (38°C) and structurally sound, clean and free of all dirt, oil, grease, loose peeling paint, laitance, concrete sealers or curing compounds.

Key to have easy and proper installation of very large format tiles, is the preparation of the surface and complete removal of demolding wax powder on the back surface of the tile. Should there be a fiber mesh present on the back surface of the tile, ensure that it is completely removed before proceeding with the installation using Laticrete 345 Super Flex.

Before installation on floor with Floor flatness: While installing on floor, it is recommended that the substrate has the following:

•Properly prepared substrates should not have more than a permissible variation of 1/8" in 10 feet (3 mm in

3.05 m) from the required plane, nor more than 1/16" in 24 inches (2 mm in 600 mm) when measured from high points in the surface with a straight edge.

Before installation check for Wall flatness: While installing on the wall, it is recommended that the substrate has the following:

The prepared substrates shall have no more than a permissible variation of 1/8" in 10 feet (3 mm in 3.05 m) from the required plane; nor more than 1/16" in 24" (2 mm in 60 cm) when measured from high points in the surface with a straight edge.

The surface flatness is essential as a mild impact on the uneven surfaces of the tile can result in the cracking of very large format/ thin tile.

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 installation of very large format tiles.

Bonding to Concrete Surfaces:

Concrete or plaster must be fully cured and must accept water absorption. Test by sprinkling water on various areas of the substrate. If water is absorbed, then a good bond can be achieved; if water beads, it indicates surface contaminants and hence loss of adhesion may occur. Contaminants should be mechanically removed before installation. Concrete

must be free of efflorescence and not subject to hydrostatic pressure. Concrete slabs should have a coarse finish to enhance the bond. Smooth concrete slabs must be mechanically abraded to achieve an improved bond with the adhesive mortar.

Bonding to Lightweight Cementitious Systems:
Lightweight underlayments must have obtained sufficient compressive strength before installation of the large format tiles. The underlayment must be sufficiently dry and properly cured to the manufacturer's specifications for permanent, non-moisture permeable coverings. Surfaces to be tiled must be structurally sound and subject to deflection not exceeding current industry standards. Surfaces shall be free of all grease, oil, dirt, dust, curing compounds, waxes, sealers, efflorescence, or any other foreign matter.

Bonding to Cutback Adhesive:
The hardened adhesive parts must be removed, as they reduce mortar bond strength to cement surfaces. Never use adhesive removers or solvents, as they soften the adhesive and may cause it to penetrate the concrete. Adhesive residue must be wet scraped to the finished surface of the concrete. To determine desirable results, do a test bond area before starting the installation process.

Movement Joint Placement:
Movement joints are required for perimeters and other changes of plane in all installations. Expansion joints shall be provided through the tile work from all construction or expansion joints in the substrate. Do not cover expansion joints with adhesive mortar. Follow ANSI Specification AN-3.8 "Requirements for Expansion Joints" or TCA Detail EJ171 "Expansion Joints". For tile installation over Cement Backer Board: follow TCA installation details W244.

Material Preparation & Application to the tile:

Mixing Procedure:
Place clean, potable water into a clean mixing bowl. Add LATICRETE 345 Super Flex powder into the mixing bowl. Use approximately 5.5 – 6 L of water for 20 kg of powder. Use a low-speed paddle drill mixer to get a smooth, paste-like consistency. Let the mixture slake or stand 5-10 minutes; stir again and use. Stir occasionally, but do not add more water. When properly mixed, troweled ridges will stand without slump.

Mixing Ratios:

Mix 5.5-6 L clean water into 20 kg bag of mortar.

Application of Product:

a) Tile/Stone
Use a properly sized notch trowel to ensure proper coverage under tiles. Using the flat side of the trowel, apply a skim coat of mortar to the surface. With the notched side of the trowel held at a 45° angle, apply additional mortar to the surface, combing in one direction. Press the tile firmly into place in a perpendicular motion across ridges, moving back and forth. The perpendicular motion flattens ridges and closes valleys, allowing maximum coverage. For all large format tiles, back buttering is mandatory. With all tiles, back-buttering is advisable. If the material has skinned over (not sticky to the touch), recomb with the notch trowel; if too dry, remove and replace the dry material with fresh material. Adhesive mortar should not be used to fill low spots in the flooring. The mortar thickness should not exceed the specified range. Ambient temperature should be maintained above 50°F (10°C) or below 100°F (38°C) for 72 hours to achieve a proper bond.

B) Paper faced Glass Mosaic tiles
The LATICRETE® 345 Super Flex adhesive shall be applied to the surface to be tiled with a notched trowel using a scraping motion to work the adhesive into good contact with the surface to be covered. Notch trowel with notches of approximately 4 mm is recommended to get a bed thickness of 1.5-2 mm. A v-notch of 3mm also can be used to get a bed thickness of 1.5 mm. Apply only so much that it can

be covered with tile within 10-15 minutes or while the adhesive surface is still tacky. The Glass Mosaic tiles shall then be set in place and beaten gently with mallet or grouting float to ensure 100% full bedding. Tiles shall be aligned to achieve uniform joints and then allowed to set until firm.

After the tiles are set firm, the face of the sheets of front paper-mounted glass mosaic tiles shall then be dampened, and the face mount paper can be removed.

NOTE: All glass mosaics with mesh backing should be installed using Resin based adhesive like Laticrete PUA 212.

NOTES: For tile or stone installations on plywood and wood substrates, MYK LATICRETE DWA 215 OR MYK LATICRETE PUA 212 is recommended. Please refer specific product Technical Data Sheet for detailed recommendations.

For all stones with a back-protection mesh, it is crucial to remove the mesh first and remove the epoxy layer by light grinding to ensure a perfect bond with the adhesive.

NOTE TO THE SPECIFIER AND INSTALLER:
Check if the adhesive mortar chosen is the right mortar for the installation of the tile based on the following:

- **Type of Substrate**
- **Size of Tile**
- **Type of Tile**
- **Area of Application**

While installing tile/stone on the external walls and floors, it is essential to provide the spacer joints by creating spaces between the tiles/stones and fill them up with MYK LATICRETE cement-based grout mixed with MYK LATICRETE 1776 grout admix plus or flexible grout like MYK LATICRETE STELLAR. (In the absence of spacer joints, the surface movements can push tiles/stones away from the substrate, causing de-bonding of tiles or stones)

The exterior tile/stone installations are provided with joints (spaces) on the periphery of the area without allowing the tile/stone to be bound by the peripheral masonry work or plaster.

HOT & COLD WEATHER TILING:
* Please refer technical document on Hot & Cold weather tiling

Grouting:

Grout installation shall be commenced after a minimum of 24-48 hours of curing time at 70°F (21°C). Grout with MYK LATICRETE Sanded or Unsanded Grout mixed with MYK LATICRETE® 1776 Grout Admix Plus.

For maximum stain resistance of Internal spacer joints applications, use LATAPOXY® SP-100 Stainfree Grout.

For maximum stain resistance of External spacer joints applications, use MYK Laticrete Stellar Grout, which can accommodate movements and is UV resistant.

Note: Grouts are not a replacement for waterproofing tiled areas. In case of waterproofing requirements, choose an appropriate waterproofing membrane.

Use of a mechanical edge-levelling system

Mechanical edge levelling systems or clamps will significantly assist in installing large format or thin body porcelain tile to reduce the effects of lippage. These mechanical clamps help to align the edges of the tile and, in many cases, minimise lippage to zero

Beating of tile into mortar bond coat

Lightly beat the tile's surface with an orbital sander to ensure good contact. Start in the centre of the tile and work to the outer edges. If the above is not available, use a rubber mallet and slowly tamp on the surface

Do not apply excess downward pressure to the vibrator. Instead, allow it to float across the surface of the tile.

Cleaning of equipment:

Clean all tools with water before the material dries.

Storage:

Store in a cool, dry area.

Shelf Life:

Factory sealed containers of this product are guaranteed to be of first quality for (1) year * If stored off the ground in a dry area
. *High humidity will reduce the shelf life of bagged product

Health Precautions:

See Safety Data Sheet for more information.
This product contains Portland cement and silica. Avoid eye contact and prolonged contact with skin. Wash thoroughly after handling. If eye contact occurs, flush with water for 15 minutes and consult physician. Do not breathe dust; wear a P2-type respiratory mask. Follow the safety norms as per ISO 45001 Occupational Health and Safety Clauses.

CUSTOMER CARE

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