



HYDA CON
Innovative chemical solutions

Technical Data Sheet

HYDATHENE PU 2C

Specialized Polyurethane Adhesive

ABOUT HYDATHANE PU 2C

HYDATHANE PU 2C is a high-performance, two-component, modified polyurethane thin-set adhesive formulated for superior bonding of tiles and stones on both interior and exterior walls and floors. Designed for multiple substrate types, this adhesive offers excellent flexibility, high tensile and shear strength, thermal shock resistance, and long-lasting performance.

It complies with EN 12004/ISO standards as R2T and meets **IS 15477:2019 Type 5 TS2** classification.

SURFACE APPLICATION MATERIALS

- | | |
|---|--|
|  Ceramic, vitrified, semi-vitreous, and glass mosaic tiles |  Rubber, PVC, linoleum, and epoxy/PU resin-based substrates |
|  Natural and engineered stones |  Precast terrazzo and metal tiles |

RECOMMENDED SURFACES / SUBSTRATES

- | | |
|---|--|
|  Concrete – VDF, Tremix, MIVON |  Cement mortar beds and plaster |
|  Cement terrazzo |  Concrete masonry and brick masonry |
|  Cement backer board, gypsum board |  Metal floors and walls |
|  Plywood, wood |  Engineered stone and marble |

APPLICATION AREAS

- | | |
|--|---|
|  Interior and exterior wall & floor installations |  Dry and wet areas, including kitchens and bathrooms |
|  Drywall boards and metal substrates |  Residential, commercial, and industrial zones |

PRODUCT HIGHLIGHTS

- ✓ TWO COMPONENT SYSTEM – Pre-measured, easy to mix and apply
- ✓ FLEXIBLE & STRONG – Excellent tensile and shear strength
- ✓ WATER & CHEMICAL RESISTANT – Ideal for high-moisture environments
- ✓ THERMAL SHOCK RESISTANT – Suitable for extreme temperature variation
- ✓ ECONOMICAL USAGE – High coverage with minimal wastage

TECHNICAL DETAILS

EN / ISO DATA

PROPERTY	TEST METHOD	REQUIREMENT	HYDATHANE PU 2C VALUES
Vertical Slip	EN 1308	≤ 0.5 mm	0.2 – 0.3 mm
Tensile Adhesion – Open Time ≥ 20 Min.	EN 1346	≥ 0.5 MPa	1.6 – 1.9 MPa
Initial Shear Bond	EN 12003 – Clause 7.3	≥ 2.0 MPa	2.4 – 2.6 MPa
Tensile Adhesion – Water Immersion	EN 12003 – Clause 7.4	≥ 2.0 MPa	2.3 – 2.4 MPa
Shear Adhesion after Thermal Shock	EN 12003 – Clause 7.5	≥ 2.0 MPa	2.2 – 2.3 MPa

IS DATA

PROPERTY	TEST METHOD	REQUIREMENT	HYDATHANE PU 2C VALUES
Vertical Slip	IS 15477:2019 – Clause 5.5	≤ 0.5 mm	0.3 – 0.3 mm
Tensile Adhesion – Dry Condition	IS 15477:2019 – Clause 5.1	≥ 2.0 N/mm ²	2.5 – 2.9 N/mm ²
Shear Adhesion Strength – Dry Condition	IS 15477:2019 – Clause 5.2	≥ 6.0 N/mm ²	6.6 – 7.6 N/mm ²
Shear Adhesion Strength – Heat Ageing	IS 15477:2019 – Clause 5.2	≥ 3.0 N/mm ²	3.3 – 3.5 N/mm ²

APPLICATION INSTRUCTIONS

SUBSTRATE PREPARATION GUIDELINES

1. CLEAN & PREPARE JOINTS

Ensure all substrate surfaces are clean, structurally sound, and free of oil, grease, loose paint, dirt, laitance, sealers, curing compounds, or any surface contaminants. Substrates must be compact, consistent, and dry, with no loose, flaky, or unstable parts.

NOTE: Do not apply HYDATHANE PU 2C over expansion joints. These must be honored through the installation and filled with appropriate joint fillers. Avoid acid cleaners; if used previously, rinse thoroughly with clean water.

2. INSPECT TILE/STONE SURFACE

Ensure the substrate is stable, crack-free, and cured completely. For concrete substrates, a curing period of 28 days is mandatory. Test areas with HYDATHANE PU 2C on tiles or stones (especially porous materials) are recommended to check for any adverse reactions like staining or discoloration.

3. MOVEMENT JOINT PROVISION

Movement joints from the substrate must be extended through the tile or stone finish. Provide expansion joints as per ANSI A108 AN-3.8 or TCA Detail EJ171-91 standards. Do not fill expansion joints with HYDATHANE PU 2C. Instead, use flexible fillers such as silicone sealant or other suitable polyurethane- or silicone-based sealants. Spacers should be provided in all external installations to accommodate thermal movement.

4. PROTECT THE WORK AREA

In external applications or installations exposed to direct sunlight, protect the area after application. Maintain protection for at least 7 days to allow proper curing of HYDATHANE PU 2C. Do not expose the area to water or heavy loads during this time. For pool or wet area applications, delay water exposure or filling until full curing is complete.

HOW TO MIX THE ADHESIVE

1. COMPONENT COMPOSITION

HYDATHANE PU 2C is supplied as a two-part polyurethane adhesive system, comprising:

- Part A – Hardener
- Part B – Resin

➤ Ensure both components are stored at ~25°C for at least 2–3 days prior to use for best results.

2. MIXING PROCESS

Pour the full quantity of Part A (Hardener) into the container holding Part B (Resin). Using a clean bucket and a low-speed mechanical mixer (≈400 RPM) with a helicoidal stirrer, blend the two components thoroughly from the bottom upwards. Continue mixing until a smooth, uniform, and evenly coloured mixture is obtained.

3. MIXING RATIO

Use the preset ratio of 1:4 (Part A : Part B) by weight. Do not alter this ratio. Only mix quantities that can be consumed within 1 hour at 25°C and 50% relative humidity.

4. READY FOR APPLICATION

Once mixed, immediately apply HYDATHANE PU 2C to the prepared dry substrate.

- Use the flat side of a trowel to firmly work adhesive into the surface.
 - Then use the notched side of the trowel to comb additional adhesive evenly.
 - Only spread as much material as can be tiled over within 10–15 minutes while the adhesive remains tacky.
 - For large-format tiles (>12"x12"), back-butter for full bedding.
 - Beat tiles gently with a rubber mallet or block to embed and align.
- If the adhesive has skinned over or is no longer sticky, remove and replace with fresh mix.

STEP-BY-STEP TILE APPLICATION GUIDE

1. SURFACE PREPARATION

- All surfaces must be structurally sound, dry, clean, and free from dust, grease, oil, loose paint, laitance, sealers, or curing compounds.
- Substrates must be level, stable, and free of cracks or rising damp.
- Ensure temperature is between 4°C and 35°C during application.
- Uneven surfaces should be corrected using appropriate smoothing and leveling compounds.
- New concrete should be cured for at least 28 days.
- Expansion joints must be carried through the tile work and should not be covered with adhesive.

2. TILE PLACEMENT

- Apply HYDATHANE PU 2C adhesive to the substrate using the flat side of a notched trowel, pressing firmly to ensure good contact.
- Comb additional adhesive with the notched side to create uniform ridges.
- Fix tiles within 10–15 minutes of adhesive application.
- Press tiles firmly into the adhesive and tap with a rubber mallet for level alignment.
- Periodically lift tiles to verify full adhesive transfer on the back.
- If the adhesive forms a dry skin, remove it and reapply fresh adhesive.

3. ACHIEVING FULL ADHESION

- Back-Buttering (for tiles larger than 12"x12"): Apply adhesive to the back of the tile in addition to the substrate for complete bonding.
- Ensure 100% adhesive coverage, especially in areas exposed to moisture.
- Use a beating block and mallet to embed the tile and eliminate air pockets.

4. SPACING & CLEANING

- Use tile spacers to maintain uniform joint widths.
- Clean excess adhesive from tile surfaces and joints with a damp sponge before it sets.
- For glass mosaic tiles, apply using a V-notch or 4 mm notched trowel to achieve 1.5–2 mm bed thickness.
- After setting mosaic tiles, gently beat in with a mallet or float and align for uniform joints.

5. SPECIAL CONSIDERATIONS

- When tiling over drywall boards (cement board, gypsum board, plywood, etc.), leave joint gaps and fill with flexible materials.
- For external tile and stone applications, leave spaces between tiles/stones and fill with flexible sealants or high-performance grouts.
- Do not install tiles directly over expansion joints; joints must extend through to the surface and be filled with flexible materials.

- Avoid tile movement due to peripheral constraints by leaving periphery joints unbounded by surrounding plaster or masonry.
- For highly absorbent natural stones, apply a suitable impregnating sealer prior to installation to prevent staining.

PRO TIPS & PRECAUTIONS

- **Mix Only What You Need:** Use mixed adhesive within 1 hour.
- **Right Storage Temperature:** Store both parts at 25°C for 2–3 days before use.
- **Use a Slow-Speed Mixer:** Mix at ~400 rpm for a uniform blend.
- **Prepare the Surface:** Ensure it's clean, dry, and fully cured.
- **Apply in Small Sections:** Spread only what can be tiled within 10–15 minutes.
- **Check Coverage:** Lift tiles occasionally to confirm full adhesive contact.
- **Avoid Using Skinned Adhesive:** Remove and replace if surface dries.
- **Leave Expansion Gaps:** Keep joints clear and don't tile over them.
- **Back-Butter Large Tiles:** Apply adhesive to the tile back for better bonding.
- **Grout After 24 Hours:** Use flexible, stain-resistant grout for durability.

PRODUCT SPECIFICATIONS & STORAGE GUIDELINES

AVAILABLE PACKAGING

- 4 kg Pails

MIXING RATIO (Part A : Part B): 1 : 4

COLOUR:

- Part A: Pale Yellow
- Part B: White

SHELF LIFE : 12 months from the date of manufacture when stored properly.

STORAGE LIFE: Store in original, sealed packaging.

- Keep in a cool, dry place between 10°C and 35°C.
- Protect from:
 - Direct sunlight
 - Moisture and humidity
 - Extreme temperatures (below 5°C or above 35°C)

QUALITY CHECK: Discard if the container is leaking or the material has hardened.

GROUTING INSTRUCTIONS

Use HYDAPOXY range grouts like HYDAPOXY 711 or HYDAPOXY 712 for maximum stain resistance and compatibility.

1. WAITING TIME:

Begin grouting only after 24 hours of tile installation.

2. RECOMMENDED PRODUCTS:

- Grout installation shall be commenced after a minimum of 24 hours curing time at 70°F (21°C).
- Grout with HYDAPOXY Sanded or Unsanded Grout mixed with HYDAPOXY 1776 Grout Admix Plus.
- For maximum stain resistance of internal spacer joint applications, use HYDAPOXY 711 or HYDAPOXY 712.
- For maximum stain resistance of external spacer joint applications, use HYDATHANE PU 2C or Stellar Grout.

3. APPLICATION TIP:

Maintain consistent joint gaps and use flexible grout like HYDAPOXY or Stellar Grout especially for exterior applications and drywalls.

COVERAGE DETAILS

- 8 kg pack:
 - 15–17 sq. ft. coverage using a 1/4" x 1/4" (6 mm x 6 mm) square-notched trowel for a 3 mm bed thickness.
 - Coverage will vary depending on:
 - Trowel notch size
 - Type and size of tile
 - Substrate smoothness and evenness

FACTORS AFFECTING COVERAGE:

- Trowel size & application technique
- Tile size & material
- Surface smoothness & porosity

SAFETY & APPLICATION GUIDELINES FOR HYDATHANE PU 2C

1. PERSONAL PROTECTION

- Wear protective gloves, clothing, and eye/face protection while handling.
- Keep out of reach of children at all times.
- For professional use only – not intended for consumer DIY applications.

2. EMERGENCY PROCEDURES

- **Skin Contact:** Wash immediately with plenty of clean water.
- **Eye Contact:** Rinse thoroughly with water for at least 15 minutes and seek medical attention if irritation persists.

3. MIXING INSTRUCTIONS

- HYDATHANE PU 2C is a two-component adhesive. Mix Part B into Part A using a low-speed (~400 RPM) helicoidal mixer.
- Maintain a mixing ratio of 1:4 (Part A: Part B) by pack volume.
- Stir thoroughly until a smooth, uniform, and homogeneously coloured paste is obtained.
- Mix only the quantity that can be used within 1 hour at 25°C / 50% RH.
- Store packs at approximately 25°C for 2–3 days prior to use.

4. SURFACE PREPARATION

- All substrates must be clean, dry, level, and structurally sound.
- Surface temperature should be between 4°C and 35°C.
- Ensure removal of oil, grease, dust, loose particles, paint, curing agents, and sealers.
- Substrates must be free of rising damp and have completed curing shrinkage.
- Concrete must be a minimum of 28 days old and damp-cured.
- Uneven surfaces must be corrected using appropriate levelling or smoothing compounds.
- Do not apply on expansion joints – follow TCA EJ171 or ANSI AN-3.8 guidelines for expansion joint detailing.

5. INSTALLATION & PROTECTION

- Apply HYDATHANE PU 2C adhesive to the substrate using the flat side of a notched trowel.
- Comb adhesive with the notched side to ensure full tile contact.
- Install tiles within 10–15 minutes on fresh, tacky adhesive.
- Back-butter large-format tiles (>12"x12") to ensure full coverage.
- Beat tiles into position using a rubber mallet for proper embedding.
- Protect newly installed tiles from rain, water, and foot traffic for at least 24 hours.
- On drywall boards (gypsum, cement, plywood, etc.), use spacers and fill joints with flexible grout or sealants like Stellar Grout or silicone.
- For external tile/stone installations, provide proper joint spacing and avoid binding tiles against surrounding plaster or masonry.
- Do not apply tiles directly over expansion joints; continue the joint through tile work and fill with flexible materials.

PERFORMANCE LIMITATIONS

- Not a self-levelling compound – use suitable levelling systems if surface variation exceeds tolerance.
- Curing time may vary depending on ambient temperature, humidity, and substrate conditions.
- When in doubt about substrate compatibility, conduct a patch test before full application.
- Not recommended for installation over substrates with active or rising dampness.

- Do not apply over surfaces with dust, oil, grease, curing compounds, or loose material.
- Skinned-over adhesive must be removed and replaced with fresh material to ensure bonding.
- Ensure proper expansion joints are provided and not covered with adhesive or tile.
- Inadequate provision of movement joints can result in debonding or cracking of tiles/stones.
- Product must be stored at ~25°C for at least 2–3 days before use for optimal performance.
- Application over drywall or board substrates requires proper joint spacing and flexible grout or sealant usage.
- Exterior installations require special care to avoid edge bonding and must include peripheral joints.
- Full coverage of large-format or glass tiles is essential—back-buttering may be required.
- Do not apply tile/stone directly over structural or substrate expansion joints.

End of TDS