



## HYDAMIX 291

Technical Data Sheet

### ABOUT HYDAMIX 291

**HYDAMIX 291** is a high-performance, polymer-fortified latex admix designed to be used in combination with cement-based filler powders like Crete Filler Powder. It is ideal for creating a flexible, high-strength thin-set adhesive for the installation of large-format tiles and stones across diverse substrates. This product performs exceptionally in both interior and exterior environments, offering excellent bond strength and flexibility.

**HYDAMIX 291** exceeds the performance standards—

**IS 15477:2019 (Type 3TS1)**

**EN 12004 / ISO 13007 C2TES1**

**ANSI A118.4ET**

### SURFACE APPLICATION MATERIALS

- Large format tiles and slim porcelain tiles
- Ceramic, vitrified, and natural stone tiles
- Vitreous, semi-vitreous, or non-vitreous tiles
- Cement-based precast terrazzo
- Quarry and cement body tiles
- Glass mosaic tiles

### RECOMMENDED: SURFACES / SUBSTRATES

- Concrete & concrete masonry
- Cement terrazzo
- MIVON concrete, VDF, precast concrete
- Calcium silicate board
- Cement mortar beds & plaster
- Gypsum wall board
- Ceramic, vitrified tile & natural stone
- Brick masonry
- Cement backer board

## APPLICATION AREAS

- Tile-over-tile applications
- Commercial spaces and public areas
- Flooring and walls (internal and external)
- New construction and renovation projects
- Wet areas like pools, water bodies, and spa zones
- Residential dry and wet areas (washrooms, saunas, spas, fountains, swimming pools)
- Terraces, balconies, and podium decks

## PRODUCTS HIGHLIGHTS

- ❖ **LATEX-BASED FORMULA** – Designed for polymer fortification of Crete Filler Powder for superior tile adhesive.
- ❖ **FLEXIBLE AND HIGH STRENGTH** – High bonding performance and ultimate flexibility for external and internal use.
- ❖ **WATER & SHOCK RESISTANT** – Suitable for submerged and high-traffic environments.
- ❖ **EXTENDED OPEN TIME** – Makes installation easier, especially for large-format tiles and stones.
- ❖ **NON-SAG / NON-SLUMP** – Perfect for vertical and horizontal applications.
- ❖ **EXCEEDS ANSI A118.4ET** – Conforms to international shear bond strength benchmarks.
- ❖ **COMPLIES WITH EN / ISO STANDARDS (C2TES1)** – Assures globally certified performance.
- ❖ **SURPASSES IS 15477 TYPE 3 / TS1** – Fully compliant with Indian national standards for tile adhesives.

## TECHNICAL DETAILS

### ANSI DATA

PROPERTY	TEST METHOD	REQUIREMENT	HYDAMIX 291 VALUES
Open Time (30 Minutes at 28°C)	ANSI A118.4 Clause 5.3	≥75 psi (0.50 MPa)	151–161 psi (1.04–1.11 MPa)
Sag	ANSI A118.4 Clause 6.0	≤0.02 Inches (0.50 mm)	0.013–0.015 Inches (0.33–0.38 mm)
Glazed Wall Tile Shear Strength (7 Days)	ANSI A118.4 Clause 7.1.2	>300 psi (2.07 MPa)	451–476 psi (3.11–3.28 MPa)
7 Days Water Immersion	ANSI A118.4 Clause 7.1.3	>200 psi (1.38 MPa)	351–401 psi (2.42–2.77 MPa)
Porcelain Mosaic Tile Shear Strength (1 Day)	ANSI A118.4 Clause 7.2.2	>75 psi (0.52 MPa)	176–201 psi (1.21–1.39 MPa)
Porcelain Mosaic Tile Shear Strength (7 Days)	ANSI A118.4 Clause 7.2.3	>200 psi (1.38 MPa)	426–451 psi (2.94–3.11 MPa)
7 Days Water Immersion	ANSI A118.4 Clause 7.2.4	>150 psi (1.03 MPa)	376–401 psi (2.59–2.77 MPa)
28 Days	ANSI A118.4 Clause 7.2.5	>200 psi (1.38 MPa)	476–501 psi (3.28–3.45 MPa)
28 Days Freeze-Thaw Cycling	ANSI A118.4 Clause 7.2.6	>175 psi (1.20 MPa)	401–426 psi (2.77–2.94 MPa)
12 Weeks	ANSI A118.4 Clause 7.2.7	>200 psi (1.38 MPa)	476–526 psi (3.28–3.63 MPa)
Quarry Tile Shear Strength (28 Days)	ANSI A118.4 Clause 7.3.2	>150 psi (1.03 MPa)	376–401 psi (2.59–2.77 MPa)
28 Days Freeze-Thaw Cycling	ANSI A118.4 Clause 7.3.3	>100 psi (0.69 MPa)	326–351 psi (2.25–2.42 MPa)

**EN / ISO DATA**

PROPERTY	TEST METHOD	REQUIREMENT	HYDAMIX 291 VALUES
Open Time	EN 1346	$\geq 0.50 \text{ N/mm}^2$	1.01 – 1.11 N/mm <sup>2</sup>
Slip Resistance	EN 1308	$\leq 0.50 \text{ mm}$	0.31 – 0.36 mm
Tensile Adhesion Strength – Initial	EN 1348 – Clause 8.2	$\geq 1.00 \text{ N/mm}^2$	1.81 – 2.21 N/mm <sup>2</sup>
Tensile Adhesion Strength – Water Immersion	EN 1348 – Clause 8.3	$\geq 1.00 \text{ N/mm}^2$	1.41 – 1.61 N/mm <sup>2</sup>
Tensile Adhesion Strength – Heat Aging	EN 1348 – Clause 8.4	$\geq 1.00 \text{ N/mm}^2$	2.01 – 2.31 N/mm <sup>2</sup>
Tensile Adhesion Strength – Freeze-Thaw	EN 1348 – Clause 8.5	$\geq 1.00 \text{ N/mm}^2$	1.81 – 2.01 N/mm <sup>2</sup>
Transverse Deformation	EN 12002	$\geq 2.5 \text{ mm} < 5.00 \text{ mm}$	3.31 – 3.81 mm

**IS DATA**

PROPERTY	TEST METHOD	REQUIREMENT	HYDAMIX 291 VALUES
Tensile Adhesion Strength – Dry Conditions (28 Days)	Annex A (Clause 5.1)	$\geq 1.50 \text{ N/mm}^2$	2.01 – 2.11 N/mm <sup>2</sup>
Tensile Adhesion Strength – Wet Conditions (7 Days Std + 21 Days Water)	Annex A (Clause 5.1)	$\geq 1.00 \text{ N/mm}^2$	1.76 – 1.86 N/mm <sup>2</sup>
Shear Adhesion Strength – Dry Conditions (28 Days)	Annex B (Clause 5.2)	$\geq 1.50 \text{ N/mm}^2$	2.06 – 2.16 N/mm <sup>2</sup>
Shear Adhesion Strength – Heat Ageing (14 Days Std + 14 Days Oven)	Annex B (Clause 5.2)	$\geq 1.00 \text{ N/mm}^2$	2.01 – 2.11 N/mm <sup>2</sup>
Shear Adhesion Strength – Wet Conditions (7 Days Std + 21 Days Water)	Annex B (Clause 5.2)	$\geq 1.00 \text{ N/mm}^2$	1.86 – 1.96 N/mm <sup>2</sup>
Slip Resistance	Annex E (Clause 5.5)	$\leq 0.50 \text{ mm}$	0.31 – 0.41 mm
Transverse Deformation	Annex F (Clause 5.6)	$\geq 2.5 \text{ mm} < 5.0 \text{ mm}$	3.51 – 4.01 mm

## APPLICATION INSTRUCTIONS

### SUBSTRATE PREPARATION GUIDELINES

1. **CLEAN & STABLE SURFACE** – Substrates must be structurally sound, free from dust, dirt, oil, grease, paint, curing agents, or any bond-inhibiting materials.
2. **EVEN & LEVEL BASE** – Ensure substrate variation does not exceed 6 mm over 3 meters. Rough or uneven surfaces should be corrected with suitable screed or plaster to achieve a smooth, wood float finish or better.
3. **DRY & MOISTURE-CONTROLLED** – Surface can be damp but should be free from standing water. Fresh concrete should be cured for 28 days unless using **HYDAMIX 291** with compatible powder, which allows for installation on green concrete.
4. **PRE-WET IF NECESSARY** If the surface is dry or dusty, it should be lightly moistened before application, ensuring no standing water remains.
5. **CURE NEW CONCRETE** – Allow curing of newly placed concrete for 28 days or follow modified installation methods when **HYDAMIX 291** is used with approved powder.
6. **RESERVE EXPANSION JOINTS**– Expansion joints in substrate must continue through tile surface. Do not cover joints with adhesive. Follow ANSI AN-3.8 or TCA EJ171 for joint placement.

### HOW TO MIX THE ADHESIVE

1. **MIXING RATIO** – Mix approximately 5 to 6 liters of HYDAMIX 291 latex admix with 20 kg of compatible cementitious powder.
2. **CONSISTENCY** – Stir to a smooth, trowelable paste with a slow-speed mixer. Let the mixture slake for 5-10 minutes, then remix before use.
3. **DO NOT ADD WATER** – Adhesive must be prepared using only **HYDAMIX 291**; no additional water should be used in the mix.
4. **CHECK WORKABILITY** – Adjust the consistency slightly with more powder or liquid if needed. Maintain smooth, lump-free texture for even application.

### ADHESIVE APPLICATION PROCEDURE

1. **TILE & STONE** – Apply adhesive using the flat side of the trowel to press into the surface, then comb additional adhesive with the notched side. For large format tiles (>300x300 mm), back buttering is recommended
2. **WORK TIME** – Spread adhesive only over areas that can be tiled within 10 minutes to avoid skinning.
3. **LEVELING** – Set tiles into wet adhesive and use a rubber mallet or beating block to embed and level.
4. **CHECK COVERAGE** – Occasionally lift tiles to ensure proper adhesive transfer on the back.
5. **SPACER USE** – Use appropriate spacers to maintain grout joint width. Remove spacers after adhesive sets.
6. **PREVENT WET PATCHES** – For highly absorbent stones, use **HYDAMIX 291** as a bonding coat or apply suitable impregnating sealer prior to installation.

## GLASS MOSAIC TILE INSTALLATION

1. **SUITABLE ADHESIVE MIX** – Apply adhesive prepared with HYDAMIX 291 using a 3–4 mm V-notch or square-notch trowel to achieve 1.5–2 mm bed thickness.
2. **SET WHILE TACKY** – Install tiles within 10–15 minutes while adhesive is still tacky.
3. **ALIGNMENT** – Tap gently with rubber float to ensure full bedding. Remove excess adhesive immediately.
4. **PAPER-FACED SHEETS** – Once adhesive sets, dampen the face and remove the paper.
5. **MESH BACKED MOSAIC** – For resin mesh-backed mosaics, use resin-based adhesive; **HYDAMIX 291** is not suitable.

## JOINT SPACING & MOVEMENT CONSIDERATIONS

1. **USE SPACERS** – Always provide joints between tiles or stones using spacers.
2. **PERIMETER JOINTS** – Leave gaps at wall junctions and around periphery to prevent stress-related debonding.
3. **LIMIT BED THICKNESS** – Do not exceed 12 mm of adhesive thickness.

## EXTREME WEATHER INSTALLATIONS

Follow specific hot and cold weather installation guidelines.

## PRO TIPS & PRECAUTIONS

- ✓ No foot traffic for 16–24 hours after tile installation.
- ✓ Do not add cement, sand, or extra water to the mix.
- ✓ Mix only what can be used within 4–6 hours.
- ✓ For external applications, use edge-leveling systems to reduce slippage.
- ✓ Beat tiles in properly for full bedding, especially for large tiles.

## PRODUCT SPECIFICATIONS & STORAGE GUIDELINES

### AVAILABLE PACKAGING

- White liquid: 5 Litre

### SHELF LIFE:

- 12 months from manufacturing date if stored properly in sealed packaging.

### STORAGE LIFE:

- Store in a dry, cool place (10°C to 30°C).
- Keep away from direct sunlight and high humidity.
- Avoid exposure to temperatures below 5°C or above 35°C.
- Discard if the bag is torn or the contents hardened.

## GROUTING INSTRUCTIONS

1. **WAITING TIME** – Grout after 24–48 hours curing time at 70°F (21°C).
2. **RECOMMENDED GROUTS**
  - Internal joints: Use HYDAPOXY 003 , HYDAPOXY 002 or cement grout with HYDAADMIX 141.
  - External joints: Use HYDAPOXY UV 10 Grout for flexibility and UV resistance.
3. **APPLICATION TIP** – Use appropriate spacers during tile installation to maintain uniform joint gaps.

## COVERAGE DETAILS

20 kg Bag Coverage:

- 3 mm thickness: 4–5 m<sup>2</sup> using a 6×6 mm notched trowel
- 6 mm thickness: 2–3 m<sup>2</sup> using a 12×12 mm notched trowel

## FACTORS AFFECTING COVERAGE:

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

## SAFETY & APPLICATION GUIDELINES FOR HYDAMIX 291

### 1. PERSONAL PROTECTION

- Use appropriate safety gear, including gloves, protective clothing, and safety goggles, during handling and application.
- Ensure the product is stored away from children.
- This product is intended strictly for professional installation and is not suitable for DIY use.

### 2. EMERGENCY PROCEDURES

- **Skin Contact:** Rinse skin immediately with copious amounts of clean water.
- **Eye Contact:** Flush eyes thoroughly with clean water for at least 15 minutes. Seek medical advice if irritation persists.

### 3. MIXING INSTRUCTIONS

- Always pour **HYDAMIX 291** liquid admix into the mixing vessel first and gradually add the filler powder. Never reverse the order.
- Mix approximately 5.5 to 6 Liters of **HYDAMIX 291** with every 20 kg of compatible filler powder.
- Blend to achieve a smooth, lump-free, trowelable paste. Let the mixture stand (slake) for 5–10 minutes.
- Remix before applying. Do not add extra water or admix after initial mixing.

### 4. SURFACE PREPARATION

- Ensure all substrates are structurally stable, clean, and free from contaminants such as oil, dust, grease, sealers, or curing compounds.
- Concrete surfaces should be cured for at least 28 days unless the product is being used with a latex admix.
- Level rough or uneven surfaces using a suitable screed or plaster to achieve a smooth, wood-float or better finish.

## 5. INSTALLATION & PROTECTION

- Maintain ambient temperature between 40°F–104°F (4°C–40°C) during application.
- Protect installations from rain, traffic, or heavy load for at least 24 hours.
- Back-buttering is mandatory for large-format tiles (>12"x12").
- Use spacers to maintain uniform grout joints and beat tiles into place with a mallet or beating block.
- Use mechanical tile leveling systems where needed.
- Never use adhesive mortar to level the surface.

## PERFORMANCE LIMITATIONS

- **HYDAMIX 291** is not self-leveling – surfaces must be corrected beforehand.
- Cure time may vary based on site temperature, humidity, and substrate conditions.
- Conduct a sample area test for difficult or unknown substrates.
- Do not apply adhesive over expansion joints; always maintain movement joints.

**-End of TDS**