

# TECHFIN HI-DENSITY BONDING LIQUID

## MULTI PURPOSE ADMIXTURE BONDING AGENT FOR CEMENTITIOUS SYSTEMS. WATERPROOFS AND IMPROVES MORTARS

### DESCRIPTION

TECHFIN HI-DENSITY BONDING LIQUID is a styrene-butadiene co-polymer for use with cementitious compositions. It is used in mortar and concretes as an admixture to increase resistance to water penetration, improve abrasion resistance and durability. The use of TECHFIN HI-DENSITY BONDING LIQUID in cement-based slurries and mortars is a reliable and highly water resistant bonding agent.

### APPLICATIONS

- CONCRETE REPAIR: Spalled concrete, repairing floors, beams and precast slabs.
- FLOOR SCREEDS AND TOPPING: Abrasion resistant and non-dusting floors, underlay for special finishes, mild chemicals and effluent-resistant floors.
- EXTERNAL RENDERING: Waterproof, weatherproof and frost resistant render.
- WATERPROOFING AND TANKING: Basements, lift pits, inspection pits, water towers, liquid tanks, effluent tanks, swimming pools.
- OTHER: Bedding tiles, fixing or re-fixing brick slips, bonding new concrete to old.

### ADVANTAGES

- Earlier hardening
- Greatly improved flexibility
- Tensile strength normally doubled
- Reduced shrinkage
- Good abrasion resistance
- Reduces bleeding
- Increased durability and toughness
- High resistance to water penetration

- Good resistance to many chemicals and to mineral oil
- Good resistance to frost attack
- Good resistance to salt permeation
- Excellent adhesion to steel and concrete (increased by up to 25 times)
- Adheres well to brick, glass, asphalt, wood, expanded polystyrene and most building materials
- Prolongs corrosion protection
- Similar thermal expansion and modulus properties to concrete (unlike resin mortars and primers)
- Non-toxic. Can be used with potable water

### ACTION

The use of Techfin Hi-density Bonding Liquid in cement based slurries and mortars compensates for many deficiencies in the mixes without detracting from their inherent strength and properties. It has been developed specifically for use with Portland cements. As ordinary mortar dries out, voids are left which makes it permeable and weaker. When Techfin Bonding liquid is added, the polymer particles bind together to form continuous strands and films which effectively stitch the opposite sides of the voids together and block up the spaces, thus increasing strength and resistance to water permeation.

### COMPOSITION

Techfin Hi-Density bonding Liquid is a milky white liquid dispersion of polymerized latex in an aqueous emulsion. Ready to use and combined with cement mixtures greatly improves the properties of such mixtures.

**PACKAGING:** 5L, 25L and 200L drums

### DIRECTIONS

**SURFACE PREPARATION:** Surfaces to which TECHFIN HI-DENSITY BONDING LIQUID mixes are to be applied should be clean, sound and free of deleterious substances.

Remove all laitance, oil, grease, mould oil or curing compound from concrete surfaces using a wire brush, bush hammer, scabblor or other plant as appropriate. Ensure that reinforcing steel is clean and free from grease or oil, remove scale and rust. When repairing spalled or damaged concrete, ensure that the concrete has been cut back to thoroughly sound material.

**BONDING SLURRY:** Wet down absorbent surfaces such as concrete, brick, stone, etc. ensuring that they are saturated but free of surface water. Prepare a bonding slurry of 3 parts cement to 1 part water and 1 part TECHFIN HI-DENSITY BONDING LIQUID mixed to a lump-free creamy consistency. Using a stiff brush, work the bonding slurry well into the damp surface ensuring that no pinholes are visible. Do not apply bonding slurry at a thickness in excess of 2mm. Sand should be sharp, washed, well-graded and free from excessive fines (refer to SABS 083 specification for sands).

TECHFIN HI-DENSITY BONDING LIQUID is compatible with all types of Normal Portland, Sulphate Resistant and High Alumina Cements. However, with High Alumina Cements hardening will be delayed. The strong plasticizing action of TECHFIN HI-DENSITY BONDING LIQUID greatly reduces the water / cement ratio for a given workability.

**STANDARD DOSE:** 5 to 10 litres per 50kg cement. For more demanding situations, such as greater exposure to chemicals or wear, 10 litres per 50kg cement is recommended.

**MIXING:** Should preferably be carried out in an efficient concrete mixer. A pan type mixer is recommended. Hand batching is permissible

when the total weight of the mix is less than 25kg. Charge the mixer with the required quantity of sand and cement and premix for approximately 1 minute. Pour in the desired quantity of TECHFIN HI-DENSITY BONDING LIQUID and mix for 2 minutes only to avoid excessive air entrainment. Finally, add the water until the required consistency is achieved. Owing to the strong plasticising properties of TECHFIN HI-DENSITY BONDING LIQUID rapid thinning can occur - avoid adding excessive water.

**GUIDE TO APPLICATION:** Rendering to Vertical Surfaces: Apply the bonding slurry to the prepared surface and then render immediately with TECHFIN HI-DENSITY BONDING LIQUID modified mortar in coats to a maximum thickness of 6mm per coat as greater thickness can lead to slumping. However, several coats can be applied in fairly rapid succession usually within 15 to 30 minutes. Thicker coatings can be applied providing suitable formwork is used.

Close the surface using a wooden float or steel trowel. Alternatively, scratch the first render coat after application and allow to dry overnight before applying the second coat. This technique is preferred for rendering where the drying rate is slow but is not recommended when waterproofing. Screeds and Topping, applied to horizontal surfaces: Screeds, patches, etc. based on TECHFIN HI-DENSITY BONDING LIQUID modified cements can be laid to any thickness from 60mm to 6 mm minimum.

The TECHFIN HI-DENSITY BONDING LIQUID modified mix should be placed over the still wet bonding slurry, well compacted, struck off to level and trowelled to the required finish.

**NOTE:** Whenever screeds are laid over existing concrete surfaces expansion joints in the sub-floor must be carried through the TECHFIN HI-DENSITY BONDING LIQUID modified mix.

**CURING:** Correct curing of TECHFIN HI-DENSITY BONDING LIQUID modified mixes is important. Moisture cure for at least 1 day and then allow to dry out slowly.

**DOSAGE RATE:** For all normal use the standard dose of 5 to 10 litres of TECHFIN HI-DENSITY BONDING LIQUID per 50kg Portland Cement is adequate. For extreme conditions and / or when adhesion, waterproofing, water vapour resistance or chemical resistance are critical, the dosage should be increased to 10 to 15 litres of TECHFIN HI-DENSITY BONDING LIQUID per 50kg Portland Cement.

**NOTE:** The above dosage rates are a guide only. It is the contractor's / user's responsibility to ensure that all the materials to be used are compatible and further that they meet the concrete design criteria and specification requirements of the structure. Concrete mix design tests should be carried out prior to commencement of the work.

**EFFECT OF OVER-DOSAGE:** The recommended levels should not be exceeded. Gross over dosage at an acceptable workability is not likely, but will result in an increase of the polymer properties to the detriment of the concrete compressive strength.

### WATCH POINTS

- Always use fresh cement and a well-graded aggregate free of excessive fines.
- Keep mixing time to a minimum - see above recommendations.
- A TECHFIN HI-DENSITY BONDING LIQUID modified mix is deceptive in its workability. However, when at the correct consistency it can be compacted and trowelled satisfactorily. Avoid using excess water.
- Never apply TECHFIN HI-DENSITY BONDING LIQUID modified mixes or concrete to a bonding slurry that has been allowed to dry out.
- Do not over trowel and avoid re-trowelling.
- Protect from too rapid drying out prior to trowelling.
- Rapid Hardening Cement should be used in cold weather conditions. Application can continue down to 12°C provided the mortar temperature is not allowed to drop below 10°C until thoroughly hard.
- Protect new work from frost until a compressive strength of at least 5MPa has been reached.
- Lime (not more than 10% by weight of cement used), air entraining agents and masonry cement must not be used in conjunction with TECHFIN HI-DENSITY BONDING LIQUID.

#### **Gauteng**

#### **Kwa-Zulu Natal**

#### **Western Cape**