

TECHNICAL DATA SHEET

# UNDERWATER CONCRETE

## Polymer modified cementitious materials

### DESCRIPTION

Rockbond Underwater Concrete (RB 4.04) is a premixed cementitious micro concrete specially formulated for underwater and tidal zone applications. Rockbond Underwater Concrete contains a blend of cement powders, high quality graded sands, an aggregate and a union of admixtures. The micro concrete, when mixed with water, produces a material that is cohesive, mobile, self-compacting and displays excellent resistance to washout when brought into contact with water. This product has similar properties to Rockbond Underwater Grout (RB 4.03), but the material contains a rock aggregate and is applied to fill larger volume voids and horizontal/angled surfaces that require a layer that is 60mm or greater. RB 4.04 Underwater Concrete is packaged in 25kg moisture proof durable bags and has a shelf life of five years.

## SPECIAL PROPERTIES

- Incorporates several anti-wash-out agents.
- Extremely high wash-out resistance.
- No “fog” or dispersion when placed or poured underwater.
- Extremely stable and will not segregate or bleed.
- Readily pumpable and stable under pressure.
- Self-levelling and self-compacting.
- Excellent underwater bond to brick, steel, and concrete surfaces.
- High ultimate compressive, tensile and mechanical strengths.
- Weather proof, waterproof, impermeable and resistant to chemical attack.
- Can be used above or below the waterline.
- Non-flammable, non toxic, user friendly and safe to use.

## USES

- General underwater void filling applications.
- Marine and fresh water concrete repair and protection.
- For use in hostile locations such as tidal and splash zones.
- For the repair of Seawalls, harbours, quays, jetties, ramps and slipways.
- Fortification and repair of river and sea defences.
- Repair and consolidation of water retaining structures, dams, pillars and bridge columns.
- Waterlogged foundations, anchorages, pilings, conduits, pipes and sewers.
- In situations where a quick, early strength gain is required.

## MIXING INSTRUCTIONS

Rockbond Underwater Concrete (RB 4.04) is mixed with water using a pneumatic or electric power tool with a stirrer. Use a forced action pan mixer to mix larger amounts of material.

- Add 3.5 litres of water to the container or mixer.
- Pour 25kg of powder onto the water while mixing.
- After all the powder has been added, mix for at least 30 seconds.
- The concrete is now ready for use.

Rockbond Underwater Concrete (RB 4.04) powder is mixed with water at 14% water content: 3.50 litres of water/25 kg bag.

Alternatively, small amounts of the material can be prepared by slowly adding the powder to a quantity of water and mixing to required consistency.

## APPLICATION PROCEDURE

All necessary preparatory work must be completed before the Underwater Concrete is mixed.

Ensure that all surfaces with which the material comes into contact with are clean and free of marine growth. The use of a high pressure water blaster will produce a good and strong substrate on which to apply the material.

Use Rockbond Underwater Mortar (RB 4.01) to seal shutters. Make sure joints are watertight and shutters are strong enough to contain and support the material. The Underwater Concrete can be pumped or tremied into place. Make sure the flow is continuous and that air is not introduced into the material.

After the application has been completed, any exposed concrete above water must be cured immediately with Rockbond Membrane Cure (RB 7.11) at the rate of 8m<sup>2</sup>/litre.

During adverse weather conditions, such as high temperatures and drying winds, repeat the procedure after the first application of cure is dry. For Winter applications, (less than 12°C) we recommend using Rockbond Underwater Accelerated Concrete (RB 4.06) or adding RB 6.03 A301 Accelerating Powder to the mix.

## HEALTH AND SAFETY

Rockbond Underwater Concrete (RB 4.04) is non-toxic and safe to use. However, use the same precautions as with any cementitious product, wear goggles, protective clothing and a dust mask while mixing and applying the material.

## TECHNICAL DATA

### TYPICAL DATA for UNDERWATER CONCRETE at 14% water/powder ratio at 20°C

**CONSISTENCY:** Mobile concrete

**CONSISTENCY LIFE:** 30minutes

**DENSITY:** 2200 kg/m<sup>3</sup>

### MINIMUM COMPRESSIVE STRENGTH:

**Days:** 1 7 28

**MPa:** 10 30 60

**YIELD:** 25 kg of concrete powder yields 12.5 litres of mobile concrete.

1m<sup>3</sup> of mobile concrete requires 2 tonnes of powder.

## TECHNICAL INFORMATION

Should you have any queries, or require further information, please contact our **Technical Sales Team: +64 4 568 5401**

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