



The Chemical Company

# EMACO<sup>®</sup> S90UW

Cementitious rapid setting repair mortar for underwater applications

## DESCRIPTION

**EMACO S90UW** is a ready to use, fast setting, cement based marine mortar. It was specifically developed for underwater repair and restoration work.

## RECOMMENDED FOR

- repairing eroded concrete or timber piles, sea walls, wharves
- repairing leaks or joints in marine structures, concrete reservoirs, swimming pools, pipelines, well etc.

## FEATURES AND BENEFITS

- rapid setting facilitates quick, efficient repairs to areas exposed to wave and tide action
- excellent adhesion
- high bond strength to clean concrete and timber surfaces
- easy to use
- resistant to wave action during placing
- resistant to sulphurous ground waters
- waterproof - provides a watertight seal when used to repair leaks or seal joints

## TYPICAL PERFORMANCE DATA

Compressive strength of 50mm cubes of **EMACO S90UW** placed at 21°C are:

Age	Compressive Strength (MPa)
1 day	10
3 days	18
28 days	27

## APPLICATION

### Preparation

All unsound material, dust, dirt, etc. must be removed from surfaces to be restored. Pre-dampen dry surfaces to eliminate suction.

### Mixing

Mix **EMACO S90UW** with fresh water only. Water requirements vary depending on temperature and humidity, but in most cases three volumes of **EMACO S90UW** require approximately one volume of water. Place **EMACO S90UW** into container and add half the water, mix quickly with a short handled trowel, add extra water as required. (Mix only small batches at one time, **EMACO S90UW** must be placed within 5 minutes of mixing).

Promptly add the remainder of the water and mix thoroughly until no white streaks are present. The mix is ready for use.

For hand application **EMACO S90UW** should be made into a putty-like consistency and shaped quickly into balls of about cricket ball size.

Do not retemper material which has begun to stiffen - discard material which has lost its plasticity.

### Application

When applying **EMACO S90UW** to eroded piles, all or part of **EMACO S90UW** "ball" should be centred in the cavity firmly, and quickly smoothed out from the centre to the sides with both hands, using "forward and sideways" pressure, moulding to appropriate shape and thickness.

When applying underwater, place freshly-mixed "balls" of **EMACO S90UW** into a wire basket and lower steadily to diver. Where there is wave action or turbulence in the water, it is advisable to press the **EMACO S90UW** firmly in place for a moment or so before smoothing it out to shape.

Spray application can be used for the repair of piles above the water-line and in the wave wash water-line.

## SPECIFIC APPLICATIONS

### Timber pile restoration

1. Remove marine growth and unsound timber by square cutting into sound wood above and below to the depth of furthest deterioration and then remove the unsound section by hand or with air hammers.
2. In cases of deep deterioration, make up a reinforcing cage by using eight No. 12mm diameter rods 20% shorter than the height of the cutout. Drive these rods into counter-bored holes in the top and bottom of the cut surfaces at four equidistant points and splice adjacent rods. Wrap 8-gauge galvanised wire spirally around the cage at 100mm centrelines.
3. Below water, apply **EMACO S90UW** by hand after mixing with water to a putty-like consistency. This operation must be carried out quickly as **EMACO S90UW** takes its initial set within 5 minutes. Above water, apply either by hand or pneumatic gun.
4. In cases of shallow deterioration only, 20-gauge galvanised chicken wire should be lashed and stapled to the pile and a 2mm thick coat of **EMACO S90UW** is built up in stages.

### Concrete pile restoration, honeycombed concrete repair.

1. Remove deteriorated concrete, rust and scale from reinforcing steel by chipping and/or sand-blasting.
2. Care should be taken to square up or, preferably, under-cut or "dovetail" the edges of those sections where deteriorated concrete has been removed.
3. If reinforcing steel is extensively exposed, where possible wrap 8-gauge galvanised wire spirally around exposed longitudinal bars at 100mm centrelines.
4. Apply **EMACO S90UW** under water by hand, and above water either by hand or by pneumatic gun, until adequate covering thickness is built up or restored.



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When repairing cracks or holes in leaking tanks open up the crack or hole to at least 15mm wide and 15mm deep and divert water if necessary with a plastic tube. Mix and ball up mortar, ramming in and holding until initial set. Tie off water diversion.

## ESTIMATING DATA

20kg of **EMACO S90UW** mixed in accordance with recommended application directions will yield 0.0112m<sup>3</sup> of mortar.

## PACKAGING

**EMACO S90UW** is packaged in 20kg moisture resistant bags.

## SHELF LIFE

**EMACO S90UW** can be stored in tightly sealed original bags for 6 months if kept dry and at moderate temperature.

## PRECAUTIONS

**EMACO S90UW** is not toxic, but as with other materials containing Portland cement it has an alkaline nature and thus can be irritating to skin and eyes. Wear dust mask, goggles and gloves when handling. Wash splashes off skin with clean water. If irritation persists, seek medical advice. For the full health and safety hazard information of the individual products and how to safely handle and use them, please make sure that you obtain a copy of the BASF Construction Chemicals **Material Safety Data Sheet (MSDS)** from our office or our website.

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### STATEMENT OF RESPONSIBILITY

The technical information and application advice given in this **BASF** publication are based on the present state of our best scientific and practical knowledge. As the information herein is of a general nature, no assumption can be made as to a product's suitability for a particular use or application and no warranty as to its accuracy, reliability or completeness either expressed or implied is given other than those required by law. The user is responsible for checking the suitability of products for their intended use.

### NOTE

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