

DATA Sheet



MARINE MORTAR

USES

For the repair and profiling of vertical, horizontal and overhead surfaces. in marine and tidal areas which are subject to early immersion.

ADVANTAGES

SIMPLE:	Materials are pre-packaged for simple mixing on-site. Two grades are available dependent upon size of repairs.
COMPATIBILITY:	Physical properties of cured materials similar to base concrete.
THIXOTROPIC:	Allows easy trowel application whilst enabling high application thicknesses in both vertical and horizontal situations.
LOW SHRINKAGE:	Maintains high bond strength to substrate and ensures monolithic performance.
FIBRE REINFORCED:	Improved tensile and impact strength. Excellent low sag properties.
RESISTANT:	Dense matrix provides excellent protection against the ingress of acid gases, moisture and chlorides. Excellent anti-wash out resistance.
BOND STRENGTH:	Superior to tensile strength of concrete.
COMPLIANCE:	Fully complies with the Highways Agency Standard BD 27/86 for the repair of Highway Structures. Approved by the BBA, Certificate No. 05/4276.
COST EFFECTIVE:	Economical polymer modified fibre reinforced cementitious mortar.
SAFE:	Non-toxic when cured.

PRODUCT DESCRIPTION

MARINE MORTAR is a multi-component, thixotropic, fibre reinforced, polymer modified, cementitious mortar with excellent cohesion for use in areas subject to early immersion. It cures rapidly to produce a high strength mortar with enhanced polymeric properties for the repair of voids in aggressive marine environments. The product is supplied as a two component system in pre-weighed quantities ready for on-site mixing and use, requiring no extra additions of water or aggregate. The **S** grade is suitable for application thicknesses up to 50mm whilst the **HD** contains a 10mm granite aggregate which is bagged separately to avoid segregation and can be used up to 100mm.

TECHNICAL DATA

Mixed Colour:	Concrete Grey.
Mixed Density:	2100kg/m ³ .
Minimum Application Thickness:	5mm (S), 20mm (HD).
Maximum Application Thickness:	50mm (S), 100mm (HD) per layer.
Application Temperature Range:	5°C-35°C.
Working Life:	Approximately 1 hour at 20°C.

APPLICATION DATA

Application Guide available on request.

PREPARATION

Mechanically remove all damaged concrete back to a sound core. Wherever possible, the full circumference of the steel reinforcement should be exposed to at least 25mm behind the bars and 50mm beyond the point at which corrosion is visible. On cutting back, feather edges must be avoided. The perimeter of the repair area should be stepped to a depth of 10mm when using the **S** grade and 20mm for the **HD** grade. This is achieved by means of saw or disc cutting or preferably using a power chisel. The areas to be repaired must be free from all unsound material, i.e. dust, oil, grease, corrosion by-products and organic growth. Smooth cut surfaces should be roughened, all loose material and surface laitance removed and reinforcement cleaned to bright steel using wet grit blasting techniques or equivalent approved methods. The strength of the concrete sub-base should be a minimum of 20N/mm².

The prepared substrate should be thoroughly soaked with clean water until uniformly saturated without any standing water.

PRIMING

Where the substrate concrete exhibits high porosity, the pre-dampened concrete surface should be primed with **BONDING BRIDGE 842** mixed to give a thin emulsion consistency. Two coats of **STEEL REINFORCEMENT PROTECTOR 841** should be applied to the prepared steel by brush. For further information please refer to relevant data sheets.

MIXING

MARINE MORTAR must be mechanically mixed using a forced action pan mixer or in a clean drum using a drill and paddle. A normal concrete mixer is NOT suitable. Shake Component A before use. Then pour approximately half Component A into the mixing container and while mixing, slowly add Component B, or in the case of the **HD** grade, Component C. Normal mixing time depends on the type of mixer used, 2-3 minutes is average. Mix so as to entrain as little air as possible. Use without delay.

PLACING

MARINE MORTAR should be compacted in layers not exceeding the maximum recommended thickness using a placement technique to remove entrapped air. If necessary, support with shuttering to allow for compaction if working to reveals etc. For repairs which require multi layer applications it is important to ensure that previous layers are well keyed and stable but not fully set (usually 2-6 hours dependent on temperature) prior to the application of subsequent layers. Final profiling of a high quality is achieved with a steel float. Allow to cure for a minimum of 1 hour before being immersed. The area should be protected from wave action or aggressive tidal flow if necessary.

MECHANICAL CHARACTERISTICS (TYPICAL)

	Test Method	MARINE MORTAR	
		At 5°C 5-10N/mm ² 40-50N/mm ²	At 20°C 15-20N/mm ² 50-60N/mm ²
Compressive Strength:- 1 day 28 days	BS 1881 : Part 116: 1983		
Bond Strength	BS 6319 : Part 4 (Slant Shear Method)	33-36N/mm ²	
Young's Modulus of Elasticity (E)	BS 1881 : Part 121 : 1983	24-27kN/mm ²	
Free Plastic Shrinkage	TI-B26 Danish Tech. Inst. Determination of Free Plastic Shrinkage	0.02% at 28 days	
Coefficient of Thermal Expansion	Concrete Consulting Services	17.5-18.5 x 10 ⁻⁶ /°C over range 5-55°C	
Flexural Strength	TI-B27 Danish Tech. Inst. Determination of Flexural Strength	12-15N/mm ² at 28 days	
Water Permeability	Taywood Engineering	6.21 x 10 ⁻¹⁶ m/sec i.e. 10mm MARINE MORTAR S = 3000mm of typical concrete	
Carbon Dioxide Diffusion:- Diffusion Coefficient	Taywood Engineering	D _{CO2} = 3.29 x 10 ⁻⁷ cm ² /sec	
Diffusion Resistance Coefficient		μ _{CO2} = 453,000	
Equivalent air thickness		at 10mm thickness (S) R = μ _{CO2} x S = 4530m Based on Engelfried Technique, an effective barrier to carbon dioxide is R ≥ 50m.	

CURING

Normal concreting procedures should be strictly adhered to. It is important that the surface of the mortar is protected from strong sunlight and drying winds with **FLEXCRETE CURING MEMBRANE**, polythene sheeting, damp hessian or similar.

CLEANING

All tools should be cleaned with water immediately after use.

STORAGE

Store in dry, frost free conditions at moderate temperatures, not greater than 25°C.

SHELF LIFE

12 months with unopened containers under the above storage conditions.

PACKAGING AND COVERAGE

Pack Size: 30kg Composite Weight.
Yield: One 30kg pack produces 14.3 litres of mortar.
Coverage: 2.1kg/mm/m².
i.e. 1m² at 10mm thickness requires 21kg.

SAFETY DATA

Safety Data Sheet available on request.

FURTHER INFORMATION

DO NOT ADD WATER OR OTHER MATERIALS TO THIS PRODUCT.
DO NOT REPROPORTION PACKAGING.

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