



SPECbuild MC500 Fibre

SINGLE COMPONENT SULPHATE AND CHLORIDE RESISTANT, FIBRE-REINFORCED MORTAR FOR THE REPAIR OF CONCRETE

DESCRIPTION

SpECbuild MC500 Fibre is a single component, cement-based mortar formulated to compensate for hygrometric shrinkage.

SpECbuild MC500 Fibre is composed of pre-blended hydraulic binders, synthetic fibres, selected aggregates and special water-retaining additives.

SpECbuild MC500 Fibre repairs both new and old concrete structures or reinforced concrete elements, subject to aggressive atmospheric conditions including chloride and sulphate attack.

TYPICAL USES

- Shotcrete
- Repairs floors that require resistance to oils, lubricants and which are subject to heavy abrasion such as those typically found in industrial environments.
- All types of structural repair requiring application by trowel or spray.
- Repair of load bearing elements such as reinforced columns, pre-stressed or post-tensioned beams and slabs, etc.
- Canal linings, water retaining and water excluding structures, tunnels and manholes in particular, utilities that require resistance to sulphate attack.
- Repairs to concrete in marine environments or those that require resistance to chloride ingress.
- Repair and reinstatement of concrete cover damaged by corroded reinforcing steel.
- Repairs to industrial facilities including oil and gas, marine and other structures operating under extreme working environments.
- Filling of rigid joints (e.g. between base and column, cracks in floors, joints between walls, etc.).
- Repair of precast structures.

TECHNICAL DATA

Typical results @ 20 °C

Compressive Strength (ASTM C109)

28 days 65 N/mm²

Flexural Strength (ASTM C348)

28 days 9 N/mm²

Tensile Strength (ASTM C307)

28 days 5 N/mm²

Water absorption ISAT (BS EN 1881-208)

10 minutes 0.025 ml/m²/sec

30 minutes nil

Setting time (BS EN 196-3)

Initial 2.0 hours

Final 4.0 hours

Linear shrinkage (ASTM C531-00)

7 days 0.060%

Fresh wet density 2150 kg/m³

Coefficient of Thermal

Expansion 5 x 10⁻⁶/K

APPLICATION

Preparing the substrate

Remove all degraded and/or loose concrete until a sound and solid substrate is achieved.

Where necessary clean the concrete and reinforcing steel by sweep blasting or other approved mechanical methods, to remove all dirt, any corrosion products, cement laitance, grease, oil, any previous coatings and other deleterious elements.

Any previous repairs that are no longer thoroughly bonded must also be removed.

Pre-soak the substrate with clean, potable grade water to obtain a saturated surface dry (SSD) condition.

Preparing the mortar

Pour into the mixer or a rust-free mixing vessel, the pre-gauged amount of potable grade water needed to obtain the required consistency.

Application	Litres of water per 25 kg bag
Trowel	2.75 - 3.25
Spray	3.25 - 3.75

Start the mixer and slowly add the complete bag of **SpECbuild MC500 Fibre** to the water, in a continuous flow;

Mix for 1 to 2 minutes; check to make sure the mix is well blended. Scrape any unmixed powder from the bottom and the sides of the mixer. Mix again for a further 2 to 3 minutes;

Depending on the amount of mixed material required, a mortar mixer or a slow speed heavy duty drill with an appropriate mixing paddle may also be used. Mix at low speed (300 rpm) to avoid entraining air;

Avoid mixing manually as this may adversely affect several of the mortars characteristics, including mechanical strength, shrinkage, impermeability, etc;

SpECbuild MC500 Fibre can be applied at a minimum thicknesses of 20 mm up to 60 mm in a single layer. Additional buildup can be achieved subject upon the repair area geometry, location and roughness of the concrete substrate.

Reinforcement Steel Preparation

For repairing concrete elements damaged due to reinforcement corrosion, it is recommended to use mechanical means of abrasion in order to remove the corrosion deposits from the exposed reinforcement prior to coating with **SpECcoat Zn25**.

APPLICATION

Hand Application

SpECbuild MC500 Fibre may be applied by trowel to vertical surfaces in layers up to 60 mm thick, or for overhead applications in layers up to 30 mm thick, without the use of formwork. Where higher buildup of **SpECbuild MC500 Fibre** is required, leave the surface of the previous layer in a rough condition, allow to harden, then wet the surface with water, prior to applying the second layer.

Spray Application

SpECbuild MC500 Fibre can be spray applied using a suitable piston or worm-screw type rendering machine, such as a Turbosol or Putzmeister. Do not use a continuous mixing type rendering machine.

Precautions to be observed during application

In hot working conditions the following precautions should be taken:

- Avoid direct exposure to sunlight for stored material and also mixing equipment;
- Prior to use, the product must be stored in a shaded area out of direct sunlight;
- Use cool water for mixing;
- Avoid application during the hottest time of the day and/or in direct sunlight;
- Mix only sufficient material that can be applied using available labour and equipment;

At low temperatures, prepare the mix with water heated to approx. +20°C.

Curing

In accordance with good concrete practice, all exposed surfaces of **SpECbuild MC500 Fibre** must be immediately cured after application, using wet hessian covered with polythene sheeting; failure to cure the open surfaces can cause the formation of cracks due to plastic shrinkage, especially in hot and/or windy climatic conditions; **SpECcure WE** should also be considered.

Spray water onto the surface of the application within the first 8-12 hours and repeat the operation for at least the first 48 hours. As an alternative, after finishing the application of the material, apply a coat of curing membrane such as **SpECcure WE** or **SpECcure AC**. Film forming curing membranes can impair the adhesion of subsequent finishes.

EQUIPMENT CLEANING

SpECbuild MC500 Fibre and **SpECcure WE** should be cleaned from equipment using water immediately after application.

SpECbuild Primer E1 and **SpECcoat Zn25** should be cleaned from equipment using **SpECTop Cleaning Fluid**.

PACKAGING & YIELD

SpECbuild MC500 Fibre

25 kg bags

@ 13 litre of mixed product

STORAGE & SHELF LIFE

SpECbuild MC500 Fibre has a shelf life of 12 months when stored in original packaging in a cool, dry environment.

HEALTH & SAFETY

SpECbuild MC500 Fibre contains alkalis and protection should be provided to prevent contact with skin and eyes. Inhalation of dust must be avoided whilst mixing.

Gloves, goggles and a dust mask must be worn. If skin contact occurs, wash with plenty of soap and water. Contact with the eyes should be treated by immediately washing with copious amounts of clean water followed by medical attention.

FLAMMABILITY

SpECbuild MC500 Fibre, SpECcure WE and **SpECbuild Primer E1** are not flammable.

SpECcoat Zn25 and **SpECtop Cleaning Fluid** are flammable. Do not expose to naked flames or other sources of ignition.

FLASH POINT

SpECcoat Zn25	>60°C
SpECtop Cleaning Fluid	>40°C

Issue 2: 04/2022

QA-054

Whilst the information and/or specifications given are, to the best of our knowledge, true and accurate, no warranty is given or implied in connection with any recommendations or suggestions made by us, our representatives, agents or distributors as the conditions of use and labour involved are beyond our control.

If it is proven that the product does not perform as described in our TDS, SpEC's liability extends solely to the free replacement of product, once the claim has been accepted after due investigation by SpEC. SpEC will not entertain any claims involving any form of consequential costs or damages such as shipping costs, custom duties, damages to third parties, damages to structures, penalties from delay of a project or any other form of consequential damage.

SPECIALITY ENGINEERING CHEMICALS

PO Box 61347, Dubai, United Arab Emirates. Telephone: +971 4 883 6662, Fax: +971 4 883 7696

E-mail: info@spec.ae

www.spec.ae