

Silplast PM15

Silplast PM15 is two component structural grade polymer modified mortar which is used for the reinstatement of concrete in small localised patch repairs. Silplast PM15 is alkaline in nature and will protect embedded steel reinforcement. It is specially designed for location where high compressive strengths are required. The mortar is suitable where superior resistance is required to chlorides and carbon dioxide. Silplast PM15 is supplied as a grey powder along with a liquid polymer and has to be mixed with water on site to produce a highly consistent, high strength repair mortar. The material is based on carefully blended cement, graded fillers and chemical additives and is polymer modified to provide a mortar with good handling characteristics, while minimising water demand. The hardened product exhibits excellent thermal compatibility with concrete and outstanding water requirement ensures fast strength gain and long-term durability.

Usages And Advantages

- · High strength
- · Can be applied by hand, like conventional mortars
- Extremely low permeability provides maximum protection against carbon dioxide and chlorides
- · Excellent bond to the concrete substrate
- · Shrinkage compensated
- No site batching required, supplied in pre-weighed prepacked condition
- Only addition of water at site to be made while mixing the powder and liquid parts
- · Contains no chlorides.

Silplast PM15 is designed for vertical or horizontal applications. It can be applied from a minimum of 5mm to 15mm thickness in vertical sections. Higher thicknesses can be achieved by the use of formwork. Thicker sections can be built up in layers. In horizontal locations Silplast PM15 can be applied up to 50mm thickness. The material should not be applied at less than 5mm thickness. Consult Silkon for further information.

Technical support

Silkon offers a technical support package to specifiers, end users and contractors as well as on-site technical assistance in locations all over the country.

Technical Properties

These results were obtained at a Water: Powder ratio of 0.13 and temperature @ 30°C under controlled laboratory conditions.

Compressive strength	1 Day 28 Days	13 N/mm ² 46 N/mm ²
Flexural strength	28 days	7 N/mm ²
Percentage water absorption (immersion test) after	24 hrs	0.45
Chloride ion diffusion (Accelerated electrochemical chloride ion diffusion test) in mg/litre After	24 hours	Nil
Depth of carbonation,mm (Accelerated carbonation test)	2 hours 4 hours	Nil Nil

Coefficient of thermal expansion 7 to 12 x 10^{-6} / 0 C

Setting time Initial set 3 hrs 20 mins Final set 4 hrs 40 mins

Fresh wet density

Approx 2120 kg/m³
(varies depending on actual consistency)

Chemical resistance

The low permeability of Silplast PM15 severely retards chemical attack in aggressive environment. The cured mortar is highly impermeable to acidic gases, chloride ions, oxygen and water.

Application Methodology

Saw cut or cut back the extremities of the repair locations to a depth of at least 10mm to avoid feather edging and to provide a square edge. Break out the complete repair area to a minimum depth of 10mm up to the saw edge. Clean the surface and remove any dust, unsound or contaminated material, plaster, oil, paint, grease, corrosion deposits or algae. Where breaking out is not required, roughen the surface and remove any laitance by light scrabbling or grit sand blasting.



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Oil and grease deposits should be removed by steam cleaning, detergent scrubbing or the use of a proprietary degreaser. The effectiveness of decontamination should then be assessed by a pull off test. Expose fully, any corroded steel in the repair area and remove all loose scale and corrosion deposits. Steel should be cleaned to a bright condition paying particular attention to the back of exposed steel bars. Grit blasting is recommended for this purpose. Where corrosion has occurred due to the presence of chlorides, the steel should be high pressure washed with clean water immediately after grit sand blasting to remove corrosion products from pits and imperfections within its surface.

Priming

The substrate should be thoroughly soaked with clean water and any excess water removed prior to applying one coat of Silbond AB primer and scrubbing it well into the surface. Silplast PM15 can be applied as soon as the primer becomes tacky. If Silbond AB is too wet, vertical build up of the Silplast PM15 mortar may be difficult. In exceptional circumstance, e.g. where a substrate/repair barrier is required or where the substrate is wet or likely to remain permanently damp, Silbond BA bonding aid should be used. Contact Silkon for further information.

Mixing

Care should be taken to ensure that Silplast PM15 is thoroughly mixed. A forced-action mixer is essential. Mixing in a suitable sized drum using an approved spiral paddle in a slow speed (500 rpm) heavy duty drill is acceptable for the occasional one bag mix. Free fall mixers must not be used. For normal application, use 3.25 to 3.50 litres of drinking quality water per 25 kg bag of Silplast PM15. Always add polymer in to water and mix for 2 minutes. Then add powder slowly and mix for 3 minutes until homogeneous material results. Depending on the ambient temperature and the desired consistency, the amount of water required may vary slightly but should not exceed 3.5 litres per 25 kg bag of Silplast PM15 under any circumstances.

Application

Exposed steel reinforcing bars should be firmly secured to avoid movement during the application process as this will effect mortar compaction, build and bond.

Apply the mixed Silplast PM15 to the prepared substrate by gloved hand or trowel. Thoroughly compact the mortar on to the primed substrate and around the exposed reinforcement. Silplast PM15 can be applied from a minimum of 5mm to 15mm thickness in smaller pockets or with the use of form work. If form work is used it should have properly sealed faces to ensure that no water is absorbed from the repair material. In horizontal locations, Silplast PM15 can be applied up to 100mm thickness. The minimum applied thickness of Silplast PM15 is 5mm.

Application Temperature

The ambient temperatures should be 5°C to 35°C during the application of Silplast PM15.

Curing

Silplast PM15 is a cement based mortar. In common with all cementitious materials, Silplast PM15 must be cured. Surface of the finished Silplast PM15 in a continuous film, is recommended. Large areas should be cured as trowelling progresses (0.5m at a time) without waiting for completion of the entire area. In fast drying conditions, supplementary curing with polythene sheeting taped down at the edges must be used. In cold conditions, the finished repair must be protected from freezing.

Cautions

Silplast PM15 should not be used when the temperature is below 5°C and falling. The product should not be exposed to moving water during application. Exposure to heavy rainfall may result in the surface scour. The material should not be applied on large continuous areas in single application as a render. If anydoubts arise concerning temperature or substrate conditions, consult the local Silkon office.

Packaging

Silplast PM15 Part A 25 kg Powder

Part B 1/4 kg polymer

Yield 13.5 Ltrs

Shelf Life

Silplast PM15 has a shelf life of 6 months if kept in a dry store in the original, unopened bags or packs

Fire

Silplast PM15 is non flammable