MORCEM® LITE 14

DESCRIPTION

Lightweight and insulating structural concrete for reinforcing floors and reducing thermal bridges. Due to its low density and its flexibility of use, the product is particularly suitable for renovation, it provides high thermal resistance and lightness qualities to the work. This structural concrete is suitable for both, light mixed and collaborative slabs.

ADVANTAGES AND USES

- Structural reinforcement and rehabilitation of floors: realization of light structural layers (compression layers) connected collaboratively with the structure of the original floor (of any type: wooden joist floor and ceramic rebar, wooden floor with decking, metal floors, concrete floors, etc.)
- Mixed or collaborative light slabs: realization of the collaborative sheet in light structural concrete both in new construction and in rehabilitation.
- Reduction of thermal bridges in façades, floors, balconies, pillars, lintels, jambs, perimeter bands of bearing walls (in seismic rehabilitation) and stairs, etc.
- Suitable for any part of the work where good qualities of lightness and resistance are required as well as a high thermal resistance of the constructive solution.
- Due to its low density and great flexibility of use, this product is particularly convenient for rehabilitation.

PROJECT SPECIFICATION

Morcem® Lite 14 lightweight structural concrete pre-mixed in bags based on Expanded Clay, natural aggregates, cement binder and additives.
Concrete density according to the UNE EN 206-1 standard approx. 1400 kg / m^3, compressive strength class certified according to the UNE EN 206-1 LC 20-22 standard. Rck=25 MPa in 28 days Certified module of elasticity 15.000 MPa. Thermal conductivity λ=0,42 W/mK.
Manufacture and pouring carried out in accordance with the manufacturer's instructions.

APPLICATION PROCEDURE

PREPARATION OF THE SUBSTRATE

- The substrate must be clean, without loose elements free of dust, oil, rust and residues of plaster, mortar, oils, paints, etc. and it must have good compressive and tensile strength. In the event of passage of electrical and sanitary installations, they must be adequately protected and separated to avoid possible damages during the installation of the material.
- Old substrates are generally quite dry and absorbent therefore it is advisable to take measures against the risk of excessive loss of water from the mass by absorption (abundant wetting and/ or placement of breathable waterproof canvases where possible, application of specific primers, etc.). When using the product in wooden floors on decking, it is recommended to place a breathable waterproof canvas between the wood and the concrete.

PREPARATION OF THE MIXTURE

- Morcem Lite 14 should not be mixed with any other material or additive. The mixture is easily prepared with the help of a normal concrete mixer, planetary mixer or pneumatic mortar mixer-conveyors (or "pneumatic mortar pumps"). The use of mixer-beaters for glue cement is not allowed.

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- Empty the content of one or more bags into the concrete mixer (do not fill the concrete mixer beyond 60% of its capacity).
- Add between 4 and 4.5 litres of clean water approximately for each 25 litre sack.
- Knead for approximately 3 minutes until obtaining a homogeneous dough with a semi-fluid consistency.

- The amount of water indicated above is based on our experience. Using larger amounts can affect resistance and cause "exudation" or segregation effects. Not adding the corresponding amount of water may lead to an incorrect setting of the concrete and cause the mass to dry out. The operator must carefully control the consistency of the dough and the rest of conditions on site. For example, in summer the water amount may be increased due to higher levels of evaporation caused by high ambient temperatures. Do not extend the mixing time. In the case of pumping Morcem® Lite 14 with pneumatic-type mortar mixer-conveyors (or “pneumatic mortar pumps”), the amount of water in the mass must be increased according to the pumping distance.

APPLICATION AND FINISH

- Morcem® Lite 14 is cast like traditional concrete.
- Pay attention to the vibrating time which will have to be done so that the Expanded Clay grains do not rise to the surface.

CONCRETE CURING

- Morcem® Lite 14, as well as ordinary concrete, must be protected against the risks of drying too quickly, which depend on the excessive loss of water in the upper (atmosphere) and lower part (see preparation of the substrate).
- Special climate conditions (temperatures, airflows, direct solar radiation, etc.) can accelerate the evaporation of the water, affecting the correct curing of the concrete, which should be protected with a plastic canvas and / or periodically moistened by watering it.

CONCRETE SLAB POUR

COATING AND FINISHING LAYER

- A slab (or compression layer or collaborating sheet) of structural concrete is not a simple screed and therefore should not be interrupted by installations (plumbing, drains, electricity, etc.) since it can affect its mechanical resistance. Finish layers such as suitable screeds and/or beams are required for any possible insertion. It is advisable to use light products from the GAMA Morcem Lite such as Morcem Lite 6 screed or Morcem Lite 12 beam.
- If the characteristics of the work do not allow an adequate covering layer, it is possible to lay the flooring directly on Morcem® Lite 14 as it would be done on ordinary structural concrete.
- In this case special attention should be paid during the surface setting process (smoothness and flatness) and the curing of the concrete (check "Concrete curing"), suitable materials and techniques should be used in order to adhere the cladding on the structural concrete tile (Glue concrete with a suitable elasticity, small format ceramic/tiles, bigger collocation joints and/or interposition of specific dissociation sheets before placing the cladding). The consequences that the slab deflection may have on the pavement and the residual moisture content in the concrete will also be taken into account before laying the pavement.
- To prevent the final strength of the concrete from being impaired, the amount of mixing water must be strictly controlled. The product must never be place with a dry or semi dry consistence ("wet soil").

RECOMMENDATIONS

- This material should not be used for exposed concrete applications.
- Always bear in mind that the higher the amount of water the lower the product's resistance: The material is not self-levelled: The setting should be carried out by vibration and levelling of the spill.
- Do not mix manually. Do not add any other materials or conglomerates such as cement, lime, plaster or additives, etc.
- Morcem Lite 14 should be protected from excessive dessication. Special attention should also be given to very absorbent substrates (wet them in advance or apply a PAVILAND PRIMER R) and small thickness (as it might cause the dessication of the spill).
- When dealing with depositions of concrete carried out in different phases (which are made by cutting the slab perpendicular to the substrate's plane), it is advisable to place additional reinforcements (mesh or metal cut-outs) to avoid cracks or separations between the different parts.
- Compatible with antifreeze additives.
- The use of the product in structural and / or collaborating elements must be carried out under the

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supervision of a qualified technician in accordance with the provisions of the regulations in force.

- Non-suitable material to introduce in silos.
- Do not use this material for dry or semi dry concrete depositions ("wet soil").
- Do not apply the product under extreme weather conditions (best between +5ºC and +35ºC).
- All compression resistance values refer to specimens made on site with the amount of water indicated in this technical data sheet, cured and tested according to current law and UNE standards.

PACKAGING AND STORAGE

25 litres sacks on wooden pellets. 56 sacks per pallet.
1 year storage in its original packaging, away from extreme weather conditions and humidity.

TECHNICAL DATA

Apparent density of the product in powder	1150 Kg/m³ approximately
Apparent density of the hardened product.	400 Kg/m³ approximately (Type D1,5)
Type of resistance (UNE EN 206-1)	LC 20/22
Exposure types admitted (UNE EN 206-1)	XO-XC1
Application time (at 20ºC)	45 minutes
Application temperature	from + 5 °C to + 35 °C
Approximate foot transit	12 hours after being placed
Thermal conductivity established (UNI 10351)	0,42 W/mK
Calculation thermal conductivity (UNE EN ISO 10456)	0,46 W/mK
Characteristic resistance to cubic compression certified (laboratory) 28 days: • Rck • Flck	 22 MPa - N/mm² (cubic) 20 MPa - N/mm² (cylindrical)
Certified elastic module	E=15000 N/mm²
Resistance to water vapour (UNE EN ISO12524)	μ=6 (humid field)
Permeability to water vapour (UNI 10351)	$\delta=1,9*10^{-12}$ kg/msPa
Specific thermal capacity Cp	Cp =1000 (J/kgK)
Reaction to fire (UNE EN 13501)	A1 Eurotype (Incombustible)
Performance during the application of slabs reinforcement process.	≥ 5 cm ≥ 4 cm ≥ 6 cm
Laying ceramic tiles and stone cladding	Approx. 11,75 L/m2 and cm of thickness
Accordance	UNE EN 206-1 Norm
Packing	25 litres sacks on wooden pellets. 56 sacks per pallet

LEGAL DISCLAIMER

The instructions for use are given according to our tests and knowledge and do not imply any commitment by GRUPO PUMA nor free the consumer from the examination and verification of the products for their correct use. Claims must be accompanied by the original packaging to allow a proper traceability.

GRUPO PUMA is not responsible, in any case, for the application of its products or constructive solutions carried out by the application company or other parties involved in the process and / or execution of the work, limiting the responsibility of GRUPO PUMA exclusively to the damages directly attributable to the supplied products, individually or integrated in systems, due to failures in their manufacturing process.

In any case, the drafter of the work project, the technical management or the person responsible for the work, or collaterally the application company or other parties involved in the process and / or execution of the work, must ensure the suitability of the products addressing the characteristics of them, as well as the

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conditions, support and possible pathologies of the work in question.

The values obtained by GRUPO PUMAS's products or its constructive solutions that, as the case may be, are determined by the EN standards or any other regulation that applies to it in each case refers exclusively to the conditions specifically stipulated in said regulation and that are referred to, among others, to certain characteristics of the support, humidity and temperature conditions, etc. without being them required in the tests obtained under different conditions, all in accordance with the relevant regulation.

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