VICACRETE-400®

Edition 07023

High Performance, One component, Shrinkage Compensating Micro-Concrete.

Description

Vicacrete-400 is a cementitious micro-concrete based on a blend of Portland cement and **Vicat** special binders, graded siliceous fillers and Mineral additives. **Vicacrete-400** is designed to have a shrinkage compensation action where a slight expansion occurs through the first 7 days of water curing to compensate further shrinkage after the termination of the curing. **Vicacrete-400** is pre-blended and ready to be mixed with water only to produce an easily placed micro-concrete.

Advantages

- Pre-blended and ready to use.
- Shrinkage compensating.
- Increased strength due to the hydration process and lower water / cement ratio.
- Enhanced properties gradually due to the action of active Dicalcium silicate.
- Formulated for short and long term efficiency.
- Nontoxic & Suitable for food industry and potable water.
- Waterproof & suitable for permanent immersion.
- Economic and time saving.
- Easy to use.
- Chloride free.

Uses

Vicacrete-400 can be used for but are not limited to the following:

- Repairing of damaged concrete elements such as columns, beams and walls…etc.
- Filling spaces that are too large for grouting and tight for normal concrete casting.
- Pre-cast units.
- Re-profiling of pile caps.
- Any concrete applications that require thickness more than 3 cm

Technical characteristics

Color	Grey (other colors are available upon request)
Setting time @ 23º C	**Initial** 1hr 20min **Final** 2hr 40min
Toxicity	Non-toxic
Dry density	1.8 Kg/L
Fresh density (Fluid consistency)	2.4 Kg/L
Maximum Particle size	6 mm
Minimum thickness	3 cm
Maximum thickness	100 cm or more depending on the ambient temperature (hot weather concreting procedures should be applied)
Curing	At least 7 days to activate the shrinkage compensation system
Adhesion to concrete substrate (Adhesion depends very much on proper surface preparation)	> 1 N/mm^2
Expansion after full curing for 28days EN 12617-4	≈ 0.02%
Water Permeability at 28days EN12390-8	No water penetration or weight gain at 5 bars for 3 days

Typical compressive strength tested according to EN 196-1:2005 (MPa). (4x4x16 prisms)

Water/Powder ratio	Age		
	24 hours	**7 days**	**28 days**
2.4L /30kg Bag	20	47	66

Compressive strength is increasing thereafter due to the hydration of active Dicalcium silicate.

Package & Yield

Vicacrete-400 is supplied in 30 Kg bags (other sizes maybe available upon request).

After mixing with water, the 30 Kg bag yields about 13 liters of micro-concrete when mixing water per bag is 2.40 liter. Allowance should be made for any possible wastage or surface unevenness when estimating.

Application Instructions

Surface preparation
All substrates should be clean, free from dust, loose particles, grease, oil or any other foreigner matter.
Formwork should be erected and made tight. Saturate the concreting area with water, check for leaks, leave for one hour and then blow out any surplus water. All concrete surfaces should be surface saturated dry (SSD) just before the application. For improved adhesion, the application of **Vicabond** or **SBR latex slurry** is recommended.

Mixing
Vicacrete-400 can be mixed using a free-fall concrete mixer or a high torque, low speed (300-600 rpm) drill with a helical paddle. The size of the barrel depends on the quantity to be mixed.
Pour about 2.4 – 2.7 liters of clean water into the mixing vessel for each complete bag of **Vicacrete-400**.
Slowly add the **Vicacrete-400** to the water whilst continually mixing for 3 - 5 minutes. Either the powder or the water may be introduced first in the mixer, for best results introduce half of the water then all the powder then the remaining water quantity.

Application
Dampen the sub-grade without leaving any standing puddles before the concrete is placed. Shovel or place the concrete into the form and fill to the full depth of the form. After the concrete has been compacted and spread to completely fill the forms, strike off and float immediately. To strike off, use a straight edge, move the straight edge back and forth with a saw-like motion to smooth the surface. Then use a bull float or a trowel to float the surface. This helps level any ridges and fill voids left by the straight edge. Cut the concrete away from the forms by running an edging tool or a trowel along the forms to compact the slab edges. Allow the concrete to stiffen slightly, waiting until all water has evaporated from the surface before troweling or applying a broom finish. For best results, do not overwork the material.

Curing
Immediately after placing **Vicacrete-400**, all exposed areas should be covered with clean wet hessian and kept moist until the surface is ready to be finished, or until final set. After final setting, continue the curing process with soaking, wet hessian or a curing compound for a minimum period of 7days to activate the shrinkage compensation system.
Curing is very important for the success of the task.

Precautions
Protect the **Vicacrete-400** bags from direct sun rays or any other source of heat before use; this can lead to a very fast setting. Avoid working on hot substrates and avoid mixing with hot water, the temperature of both the concrete and elements coming into contact with **Vicacrete-400** should be in the range of +5°C to +35°C. Never exceed the stated water dose and temperature to avoid bleeding, segregation and further cracking. Never remix with water to retrieve its initial workability.
For application thickness other than the stated, please refer to our technical office.
Avoid contact with gypsum or any other sulfates on substrate, mixing water or curing water in plastic state.

Health and safety

Vicacrete-400 is alkaline when mixed with water and should not come into contact with skin or eyes. Avoid inhalation of dust during mixing and wear safety glasses, dust mask and gloves. If skin contact occurs, wash thoroughly with clean water. Should eye contact occur, rinse immediately with plenty of clean water and seek medical advice.
Full health and safety data are given in Product Safety Data Sheet.

Storage & shelf life

Vicacrete-400 should be stored in normal temperature and closed shaded dry area in undamaged original packing.
It is recommended to be re-tested after 6 months from the production date if packed in paper bags and retested after 18 months if packed in plastic bags.

Technical support

For any technical support, please consult our technical office or representatives.

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