

MasterEmaco A 650 SCC

Expansive binder for self-compacting concrete without bleeding, with low W / C ratio. Very high mechanical performance, also for injection slurry.

MATERIAL DESCRIPTION

MasterEmaco A 650 SCC is a special expansive binder that:

- mixed only with water, it allows to obtain expansive slurries, superfluid, without bleeding, easily injectable and with high mechanical strength;
- mixed with sand, aggregates and water, (as for a concrete conglomerate), it allows to obtain an expansive concrete with short curing and volumetric stability at long curing, self-compacting (SCC *), with very high compressive strength (> 65 MPa), absence of bleeding and high pumpability, durable to aggressive environmental agents, without having to resort to the further addition of other additives.

* For self-compacting concrete we mean, according to the reference standard UNI 11040, "homogeneous concrete that is placed and compacted without the intervention of external means (vibration) but due to the effect of gravitational force alone. Self-compacting concrete, in addition to meeting the requirements of resistance and exposure classes, has the property in the fresh state of high fluidity with no segregation".

FIELDS OF APPLICATION

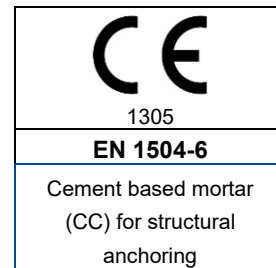
Concrete with MasterEmaco A 650 SCC are used to repair by casting any structure that has very deep degradation or that needs to be increased in section (casting thickness > 10 cm) and where no vibration is involved.

The slurries obtained with MasterEmaco A 650 SCC can be used for consolidation injections.



In compliance with the European Regulation (EU No

305/2011 and EU No. 574/2014) the product is provided with the CE marking according to UNI EN 1504-6 and the relative DoP (Declaration of Performance).



CONSUMPTION

- Shrinkage compensated grout: 1,5 kg/lt.
- Shrinkage compensated concrete: 500-520 kg/m³.

PACKAGING

MasterEmaco A 650 SCC is available in 20KG bags and 550 kg flexible IBC.

STORAGE

Store in a sheltered and dry place.

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Essential characteristics of a concrete made with MasterEmaco A 650 SCC <i>(Made with 520 kg/m³ of MasterEmaco A 650 SCC, cleaned aggregates, frost-proof, without impurity, not reactive with alkali in D_{max} = 25,4 mm, Consistency SCC, UNI EN 11041, fluidity > 60% T = 20 °C, Ur > 90 %)</i>		Performances
Bleeding	UNI 8998	Absent
Restrained expansion	UNI 8148	1 g > 0,03 %
Compressive strength	UNI EN 12390/3	1 g > 20 MPa 7 gg > 45 MPa 28 gg > 65 MPa
Flexural strength	UNI EN 12390/5	1 g > 3 MPa 7 gg > 4 MPa 28 gg > 5 MPa
Modulus of elasticity	UNI 6506	30.000 (± 2.000) MPa
Adhesion to concrete	UNI EN 1542	> 1,5 MPa
Bond strength to steel	RILEM-CEB-FIP RC6-78	> 15 MPa
Resistance to the extraction of the bars steel - displacement relative to a load of 75 kN (mm)	UNI EN 1881	<0.6
Waterproof measured as capillary absorption factor	UNI EN 12390/8	< 20 mm
Average depth of penetration of water	UNI EN 13057	< 0,5 kg·m ⁻² ·h ^{-0,5}
Resistance to accelerated carbonation	UNI EN 13295	Pass
Thermal compatibility (freeze and thaw cycles with deicing salt)	UNI EN 13687/1	Pass
Resistance to sulphates (15 cycles)	ASTM C88	No deterioration
Essential characteristics of a slurry made with MasterEmaco A 650 SCC <i>(water/binder ratio = 0,30, T=20°C, Ur > 90 %)</i>		Performances
Expansive characteristics	UNI 8147	At 24 h > 0,03%
Fluidity	Modified cone Marsh	0 min: 25±30 s 30 min: 30±35 s
Bleeding	UNI 8998	Absent
Compressive strength	UNI EN 12190	1 day > 20 MPa 7 days > 55 MPa 28 days > 65 MPa
Flexural strength	UNI EN 196/1	1 day > 3 MPa 7 days > 6 MPa 28 days > 8,5 MPa
Bond strength to steel	RILEM-CEB-FIP RC6-78	7 days > 15 MPa
Resistance to the extraction of the bars steel - displacement relative to a load of 75 kN (mm)	UNI EN 1881	<0.6

APPLICATION SHEET REMOVAL OF DETERIORATED CONCRETE

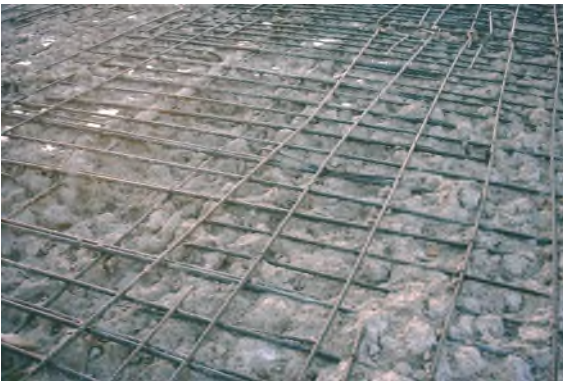
The thickness to be removed will be determined by the designer on the basis of preliminary investigations aimed at identifying the state of conservation of the structure.

The removal of incoherent or contaminated concrete should preferably be done by hydro demolition or, alternatively, with mechanical chiselling performed using lightweight compressed air powered breakers, taking all necessary precautions to avoid damage to the structures.

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The surface of the support concrete must be macroscopically rough (roughness of about 5 mm in depth) in order to obtain maximum adhesion between the support and the restoration material. The before mentioned macro roughness is essential for the contrasted expansion mechanism to be realized, which is the basis of the operation of expansive cement conglomerates.



CLEANING THE REINFORCEMENT RODS

Loose or contaminated concrete covering the reinforcement rods should be removed. Any exposed reinforcement rods must be cleaned free of rust by mechanical brushing or sanding; whenever damaged or contaminated concrete has been removed by water-demolition, this generally also guarantees suitable cleaning of the reinforcement rods.

POSITIONING ADDITIONAL STRUCTURAL REINFORCEMENT

When it is necessary to add reinforcement for structural reasons, it should be laid before any welded mesh. A concrete thickness of 2 cm over the reinforcement must be guaranteed.

POSITIONING CONTRAST WIRE MESH

The cleaning and saturation of the support concrete should preferably be carried out using pressurized water (80 ÷ 100 atm and hot water in the winter). This operation is essential to prevent the concrete substrate from removing water from the mix. An inaccurate saturation

would result in loss of adhesion and cracking of the filler material.

The use of pressurized water also guarantees effective cleaning of the surfaces to remove dust and small incoherent parts, which may still be present after the concrete has been scarified.

Cleaning and saturation of the surfaces are essential to obtain high adhesion values between the substrate and the filler material.

CLEANING AND SATURATING THE CONCRETE

The base concrete should preferably be cleaned and saturated using water under pressure (80 ÷ 100 atm and warm water in winter). This is indispensable to avoid the concrete base from taking water from the mix. Imprecise saturation would lead to loss of adherence and cracking of the filler material.

Using water under pressure also ensures efficient cleaning of the surfaces, removing dust and small loose parts that may still be present after scarification of the concrete.

Cleaning and saturating of the surfaces are essential to obtain high values of adherence between base and filler material.

TEMPERATURE

Concrete with MasterEmaco A 650 SCC may be applied without any contra-indication when the ambient temperature is between +5 °C and +40°C.

When the temperature is 5 ÷ 10°C mechanical strength is slower to develop; in any case it is advisable to keep the sacks of MasterEmaco A 650 SCC in a heated environment, to use heated mixing water (30 ÷ 50°C), to saturate the base with warm water and to apply the concrete mid-morning.

Do not apply at a temperature below + 5 °C, as should be the case for any concrete whenever no special measures are adopted.

When the temperature is 30 ÷ 40°C, it is advisable to keep the bags of MasterEmaco A 650 SCC in a cool place, to use mixing water at a low temperature and to apply concrete during the coolest hours of the day.

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PREPARING THE MIX

On site, prepare an expansive concrete with short curing and volumetric stability with long curing, self-compacting (SCC), with high compressive strength and no bleeding, and high pumpability, introducing at the work site in the mixer:

- MasterEmaco A 650 SCC dosed at least at 520-550 kg / m³;
- the aggregates of suitable assortment with suitable granulometric curve to guarantee the characteristics of the SCC and the relative performances; aggregates must be non-reactive, well washed and free of impurities;
- the water needed to obtain the desired consistency.

The maximum diameter of the aggregate must be chosen according to the thickness of the casting and the density of the reinforcing rods.

For appropriate mix design studies it is advisable to refer to our technical service.



APPLICATION

Concrete with MasterEmaco A 650 SCC must be applied on surfaces that are microscopically roughened, consistent, clean and saturated with water.

At the time of installation, all free water that may be present must be removed.

The jet will be performed continuously and without any interruption, on one side only to facilitate the escape of air.

CURING

To obtain the maximum performance that a concrete with MasterEmaco A 650 SCC can provide, correct curing is required, which can be achieved with sprayed water or wet

jute sheets (not recommended in winter) or with polyethylene sheets (not recommended in summer). Store the product in a dry and protected place



SAFETY INSTRUCTION

For information on the correct and safe use, transport, storage and disposal of the product, consult the most recent Safety Data Sheet.

OTHER SERVICES

For price analysis, specifications, supplementary brochures, references, reports and technical assistance, visit the website www.master-builders-solutions.com/it-it or contact infomac@mbcc-group.com

Scan the QR code to visit the product page and download the latest version of this datasheet.



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Since 16/12/1992, Master Builders Solutions Italia Spa has been operating under a Certified Quality System compliant with the UNI EN ISO 9001 Standard. Furthermore, the Environmental Management System is certified according to the UNI EN ISO 14001 Standard and the Safety Management System is certified according to the UNI ISO 45001 Standard.

Master Builders Solutions Italia Spa

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For further information, please consult the local Technician of Master Builders Solutions. The technical advice on how to use our products, either written or verbally given, are based on the current state of our scientific and practical expertise, and does not imply the assumption of any guarantee and/or responsibility for the final results of works executed using our products.

Therefore, the customer is not exempted from the exclusive task and responsibility of verifying the suitability of our products for the intended use and purposes.

This version supersedes all the previous ones.