



Rev 0  
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# AETERNUM MB MICROBETON

Self-leveling micro concrete with compensated shrinkage for high resistance and durability precision anchors



## DESCRIPTION

AETERNUM MB is a special micro concrete, ready to use, consisting of high purity quartz aggregates and a compound of additives that allow excellent rheology avoiding shrinkage and permeability.

AETERNUM MB is a special, ready-to-use micro-concrete made of highly purified quartz (max 6mm) aggregates and an additive compound that allows an excellent rheology without shrinkage and permeability. With the addition of water, it has the characteristics of a self-leveling, pourable, non-segregating, bleeding-free, micro-concrete, with high early and final mechanical resistance, with high adhesion to reinforcement rods and metal parts and concrete.

## FIELDS OF APPLICATION

AETERNUM MB has been formulated for the manufacturing of special self-compacting micro-concretes:

- for high resistance structures and finishing (such as pillars, etc.);
- for large machines anchoring, prefabricated elements and any type of dynamically stressed machine.

AETERNUM MB assures its dimensional stability and above all the durability of all exposure classes.

## ADVANTAGES

AETERNUM MB is easy to implement and can be used with variable consistency. Even with a super flow consistency segregation does not occur with water outflow (bleeding). Working time (60 min) at 20 ° C allows you to operate easily. Its excellent waterproofness guarantees perfect resistance to water, oil and vapor filtration, although containing sulphates, sulphides and chlorides.

AETERNUM MB is a durable and highly reliable product.

Besides its excellent surface finishing, its particular formulation makes it resistant to:

- shocks, vibrations,
- static stresses,
- dynamic stresses,
- thermic stresses

it is subjected to.

## PHYSICAL PROPERTIES

Physical state	Powder
Color	Grey Cement
Granulometry D <sub>max</sub>	6 mm
Bulk density	2,20 ± 0,03 kg / dm <sup>3</sup>
Performance	2,15 kg / dm <sup>3</sup> of micro concrete
Application temp	from + 5 to + 35 ° C
Plastic expansion	+ 0.3%
Waterproofing	Excellent

TECHNICAL DATA SHEET



TEKNA CHEM S.p.A.

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## Mechanical resistance

Compression Resistances (28 days)	> 60 Mpa
Compression Resistances (60 gg)	> 90 Mpa

## Resistance to frost-thaw cycles

The high waterproofness of AETERNUM MB gives excellent resistance to freezing and thawing cycles.

## Resistance to chemical attack

No degradation by aggressive natural agents: carbon dioxide, sulphides, sulphates, chlorides, etc.

Concrete adhesion (at 28 days)	≥ 5 Mpa
Adherence to steel - smooth bar (at 28 gg)	≥ 5 Mpa
Adhesion to steel - bar ad. Thous. (28 gg)	≥ 25 Mpa
Elastic module (7 days)	26,000 Mpa
(28 gg)	30,000 Mpa
Bleeding	Absent

## INSTRUCTIONS FOR A CORRECT ANCHORAGE

To make an anchor with a guarantee of durability, it is not enough to use a "good mortar or micro-concrete anti-retraction", a number of preparatory works are needed (Fig. 1):

1. Control of the concrete foundation.
2. Inspection of the anchoring wells and tie rods.
3. Verification of the machine and tie rods.
4. Formwork.

### 1. Checking Concrete Foundation - Support Preparation

Remove from the surface of the foundation block all deteriorated concrete parts. Remove any bursting of screed using a scraper or sandblasting machine; Do not use mechanical means that may cause micro-injuries or injuries to the foundation concrete. The surface of the concrete must be clean, free of dust, oily or grease and be slightly rough. The concrete of the structure must be saturated with water for a minimum of 6 hours before the mortar is put into service.

### 2. Inspection of the wells tie rods

Check and remove any pieces of wooden formwork as well as of any inconsistent material. Make sure that the walls of the well that are not dirty with oil, grease, etc.

### 3. Verification of the machine and tie rods

Ensure that the intrados of the machine supporting plate is free from oil, grease, dust and any other material that could damage AETERNUM MB. This applies also to the anchors (called pull-funds): Make sure they do not have calamine traces on the surface. The presence of the mechanical positioning of the machine is necessary to ensure quotas, alignments, levels, before and during mortar implementation steps, making sure that the final positioning is not altered in subsequent anchor operations. If it is expected that the supports could need to be removed after anchoring, they should be covered with a thin coat of grease for machines.

### 4. Formwork

The formwork must be dimensioned, anchored and contrasted, all joints between formworks must be sealed in order to withstand the hydrostatic thrust of a very fluid mortar and to prevent leakage of mortar and grout and the fall of the casement. It is a good practice to run the cast of the mortar pouring only from one side.

Other practices and suggestions will be provided by Tekna Chem's technical service.





## PREPARATION OF THE MICRO-CONCRETE

To make 1 m<sup>3</sup> of micro-concrete it takes approx. 2100 kg of AETERNUM MB. Mixing AETERNUM MB must be done mechanically. In the mixer, add about 85% of the water corresponding to the indications in the Table, pour AETERNUM MB with continuity and without interruption. Mix for at least 4-5 minutes after pouring the last bag of AETERNUM MB and make sure the dough is homogeneous and free of lumps.

If you need the remaining amount of water to reach the desired consistency (do not exceed the dosages shown in the table), it is necessary to mix it for another 3-4 minutes. For small mixtures (minimum one bag) use a low speed drill with mixing rod. In hot climates, there will be water dough requirements close to the maximum limits of the table, while in cold climates the opposite will occur. AETERNUM MB is a cement-based product and therefore it is necessary to comply with the rules of laying a normal cementitious conglomerate as described below.

### Warm climates

- Store AETERNUM MB in the shade;
- Use cold mix water;
- Work in the early hours of the morning or in the evening;
- Provide adequate protection for the first 48 hours and cure the jet with constantly wet sheeting or with the application of the curing membrane.

### Cold climates

- Store AETERNUM MB in a possibly heated environment;
- Use hot mix water (max 50 ° C);
- Do the work in the morning;
- Do not do anchoring at temperatures below 5 ° C;
- Protect the environment and the cast from frost;
- Check the temperature of the machine to be anchored.

The thermic accumulation of a steel structure is very high. Even days away from the thaw the structure of the machine can keep temperatures below 0 ° C.

## MICRO-CONCRETE CASTING

Saturate the concrete of the foundation block with water, including the tie wells for at least 6 hours before the jets; Remove the free water by vacuum, compressed air or rags. Make the first casting slightly liquid (2-5% more water) to saturate the concrete foundation, making the next mixtures of normal smoothness according to the technical data sheet. Ensure that the anchorage area is not subject to vibration before proceeding. If there is vibration, it is essential to stop the surrounding machines (for at least 12 ÷ 16 h), allowing the anchoring mortar to terminate the grip and begin to harden. Vibrations may affect the adhesion of the mortar to the intrados of the machine plate. Run the jet continuously without interruption, avoiding to move or vibrate the mortar under the plate. Air outflow should be favored with special holes previously made in the plate if the stretch that separates one side from the other, if prevented by obstacles underneath the plate.

Make sure the mortar has completely filled the space between the foundation and the intrados of the plate. To facilitate filling help with flexible rods or steel strings that slide alternately under the machine base in the direction of the jet. When casting is finished, it is recommended to protect it with TNT wet for at least 12 h or with our TEKNAPUR.

## PACKAGING

25 kg bags

## STORAGE

AETERNUM MB is packaged in 25 kg bags. In the original packaging, properly stocked in a dry and dry place, the product retains its features for a year.

The instructions and precautions to be adopted must comply with the recommendations given by the manufacturer TEKNA CHEM which will, on request, provide technical assistance.





## WARNINGS

Being a cement-based product, it has the same recommendations as to the use for cement.  
See the Safety Data Sheet.

## LEGAL NOTES

The information contained in this leaflet, while representing the advanced knowledge, do not exempt the user from performing accurate preliminary tests in their conditions of employment and exercise. All responsibility for improper use of the product has been declined.



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