



Rev 0
02/20



AETERNUM SUB

Highly effective reactive formulation Viscous and anti-washout agent for underwater mortars and concrete with high durability (Reactive Powder Concrete, RPC)



DESCRIPTION

AETERNUM SUB is a new generation carboxylic superplasticizer in powder adsorbed on active nanomicrosilicate that combines, with the high pozzolanic activity of the latter, an extraordinary rheology and fluidity in the absence of segregation, a remarkable resistance to chemical and atmospheric aggression and above all an extraordinary impermeability of the cement matrix. AETERNUM SUB is able to modify the viscosity of micro-concretes, mortars and concretes with medium dosing of binder for underwater applications at medium to low pressure.

CARACTERISTICS

AETERNUM SUB consists of spherical particles equal to the size of a few hundredths of a micron, so that its specific surface area is quite high: more than 220,000 cm²/ g (Blaine). This characteristic gives it high dispersion and reactivity on cement grains and a high ability to capture and fix the calcium hydroxide [Ca (OH)₂] and to transform it firstly into a silicate hydrate and subsequently into stable and irreversible calcium silicate. It should be considered that in all the cement-based mixtures, to obtain a good workability, it is necessary to use a quantity of water always higher than the quantity required for the hydration of the cement. This causes the formation of capillaries and cavities in the hardened cement paste. The more is the amount of water used, the more these cavities and capillaries generate. AETERNUM SUB, having a phase transfer agent internally, despite its high surface at the nano-molecular level, guarantees without the use of additional superplasticizers, concretes with easy and good workability, without shrinkage and with a higher final performance

AETERNUM SUB captures and reacts with the free lime, filling the gaps in the cement paste. This makes it more compact, impermeable, resistant and consequently longer lasting and with a better aspect.

AETERNUM SUB is a plasticizing viscosizer that has the property of making the fresh concrete and micro-concrete cohesive and waterproof. The cohesive action ends with the first hardening of the cementitious part, without altering the characteristics of the concrete once hardened.

Thanks to its cleverly combined components, it facilitates the casting and improves the performance of the final product, offering an increased resistance to aggressive agents attacks and improved durability.

APPLICATIONS

AETERNUM SUB finds its main application in the implementation of micro-concretes and concrete for works such as:

- walls of river basins,
- construction of piers,
- poles,
- piping,
- all works where pumping can be difficult due to the presence of water.

TECHNICAL DATA SHEET



TEKNA CHEM S.p.A.

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CHARACTERISTICS

AETERNUM SUB, despite the very small size of the particles:

- Ensures the cement paste anti-washout power;
- Gives the cement paste more workability;
- Facilitates pumping;
- Guarantees greater waterproofness to cement paste;
- Guarantees longer durability to cement paste.

PHYSICAL CHARACTERISTICS

Physical state	Powder
Color	Tobacco
Granulometry	0-30 µm
Bulk density	500-700 g/dm ³
Water solubility	Partially soluble

DOSAGE AND USE CASES

When used for pre-mixed micro-beton, AETERNUM SUB is usually added to other components during the mixing phase.

When working with beton, AETERNUM SUB gets added to aggregates and concrete making sure that it mixes perfectly with them before adding water and qualified superplasticizer according to the resistance class needed.

AETERNUM SUB is compatible with all superplasticizers made by TEKNA CHEM.

The dosage for AETERNUM SUB is in function of the used cement in order to make the concrete, according to the following table:

Cement dosage (kg/m ³)	Dosage (%)
380-430	2,0
330-380	3,0
280-330	4,0

Other doses, different from those recommended, can still be used, but only prior performing preventive tests.

PACKAGING

Bags of 12 kg

STORAGE

If stored in a dry place in the original packaging perfectly closed, AETERNUM SUB is valid for 12 months.

The moisture possibly adsorbed by the product does not affect its effectiveness, but can make its dosage difficult and imprecise as well as affecting the homogeneous distribution in the finished mixture. It is therefore advisable to close bags carefully after each use.

WARNINGS

AETERNUM SUB it is harmless to skin contact.

It is easily removable from any surface with water and soap. Inhalation can cause a slight irritation of the upper respiratory tract for which we recommend the use of a dust mask.

In case of accidental loss, the dry product shall be collected and disposed in a sanitary landfill.



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AETERNUM SUB

Highly effective / superplasticizer
water reducer T 3.1 / 3.2

Highest chlorides presence 0.1%
Highest alkalis presence 0.1%

No dangerous substances

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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