

Conform to the Norm EN 934-2

COMPOUND REACTIVE HIGH EFFICIENCY FOR
CONCRETES AND MORTARS WITH HIGH DURABILITY
(Reactive Powder Concrete, RPC)

AETERNUM 1

DESCRIPTION

AETERNUM 1 is a high – efficiency reactive formulation – compound of new generation, for concrete and mortar with high durability. It is a powder adsorbed on active nano – micro silicates that combines the high pozzolanic activity of the latter with a unique rheology, fluidity without segregation, water resistance and high resistance to mechanical compression is and to all chemical and atmospheric attacks.

For hot climates it is recommended to do preliminary tests.

CHARACTERISTICS

AETERNUM 1 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 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 notes 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 cement. This causes the formation of capillaries and cavities in the hardened cement paste. The more in amount of water used the more these cavities and capillaries generate. Having a phase transfer agent internally guarantees, without the use of additional superplasticizers, concretes with easy and good workability, without shrinkage and with a higher final performance.

Date to its chemical conformation, AETERNUM 1 accelerates the cement hydration. Therefore, during the summer season it is highly recommended to do some precautionary tests.

AETERNUM 1 added to the mixture at a rate of 3 – 4 % by weight of cement, captures and reacts with the free lime, filling the gaps in the cement paste. This makes it more compact, impermeable, resistant and consequently more long lasting and with a better aspect.

[If well designed, a concrete with AETERNUM 1 results to have completely impermeable \(waterproof et airproof\). This additive allows the produce of rheoplastic concretes and SCC reodynamic with ratios w/c very low.](#)

MODE OF USE

AETERNUM 1 finds its main applications in all concrete and quality mortars, which are required homogeneous concrete, superfluid at very low w / c ratio, with excellent finishes face-view, impervious to aggressive external agents, shrinkage compensated, high flexural and the compression strength.

AETERNUM 1 is used for the preparation:

- Protective grouts
- Grout for consolidation injections
- Expansive grouts with compensated shrinkage
- [mortars or concretes with high impermeability](#)
- [mortars or concretes with high compression strength](#)

- [Concrete or pre-stressed concrete resistant to chemical attacks](#)
- Concrete for vertical formworks (slip-form)
- Concrete or mortars for under-water applications especially in aggressive environments
- Tixotropic mortars for restauration
- Anti-shrinkage mortars, both pre mixed and dump

In any case where higher performances are required to the mortar of concrete.

- [Mechanical resistances](#)
- Chemical resistances
- Resistance to cavitation and usury
- [Impearmability, also to air](#)
- Stability and cohesion
- Compensated shrinkage

[Entire durability](#)

It is also used to reduce the bleeding of the concretes, concretes pumpable and in the concrete with high mechanical characteristics and durability.

AETERNUM 1 is also particularly recommended for concretes where the distribution of grains shows a lack of fines.

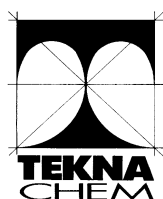
SPECIAL FEATURES

AETERNUM 1 , despite the very reduced size of its particles:

- [It does not require the use of superplasticizers agents, but through its use it is possible to have self - compacting concretes with very low water dosages;](#)
- [It gives more workability to the concrete;](#)
- [It facilitates the pumping;](#)
- [Guarantees high mechanical resistance without plastic shrinkage;](#)
- [Guarantees a better aspect of the exposed surface and a better finishing;](#)
- [Guarantees high impermeability;](#)
- [Guarantee durability and so resistance to all exposure classes;](#)

PHISICAL PROPERTIES

Appearance	Powder
Colour	Silver
Granulometry:	0-30 µm
Bulk density	350-550 g/dm ³
Solubility in water	insoluble
pH	6 ± 1
Specific Surface	20-30 m ² /g

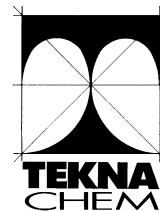


TEKNA CHEM S.p.A.

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The information provided in this data sheet, even if containing an advanced knowledge of the product, it doesn't exempt it users from performing accurate preliminary tests under the conditions of the product employment. Therefore, the company disclaims any responsibility for the improper use of the product.

TECHNICAL DATA SHEET



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DOSAGE

The dosage of AETERNUM 1 is on average 3 – 4 % of the cement weight depending on the mixture to be added and the desired characteristics.

However, the ideal dosage recommended ranges from 3,5 % by weight of cement.

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

CURING OF CONCRETE

The reactions in the pozzolanic environment are quite long and generally take place in a moist environment; for this reason it is required a proper curing of the mortar or concrete to prevent too rapid drying processes. In this respect, during the first phase of hardening, it is recommended to protect the casting with sheets of polyethylene and applying subsequently on the exposed surfaces a film of TEKNAPUR, which will avoid a rapid evaporation of the casting, allowing them to have a correct pozzolanic reaction.

STORAGE AND CONSERVATION

AETERNUM 1 if stored in a dry place in the original packaging perfectly closed, 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 mixture.

It is therefore advisable to close bags carefully after each use.

AETERNUM 1 is available in bulk, in big bags or bags.

The bulk product is transported with classic torpedoes and can be stored under normal silos for cement and dosed with the equipment of the batching plant or trough a mixing implant for big- bags.

PACKAGING

Bulk

Big – bags of 600 – 700 kg.

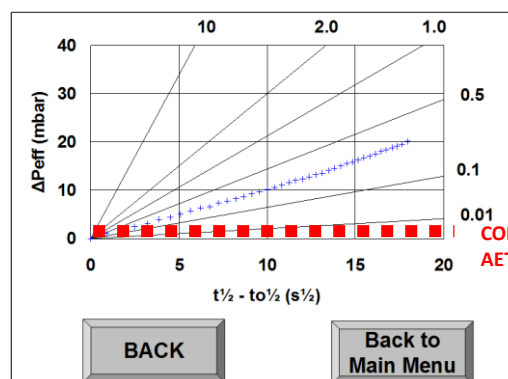
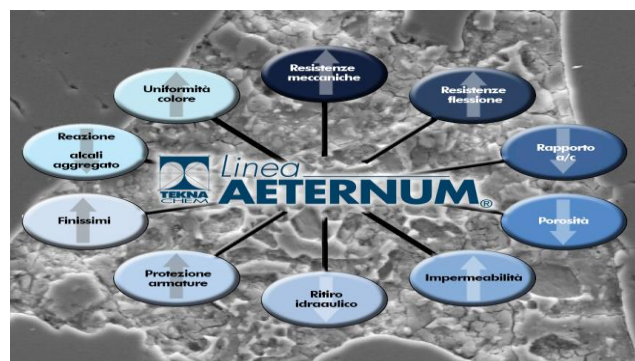
Bags 9 kg

PRECAUTIONS

AETERNUM 1 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 recommended the use of a dust mask. In case of accidental loss, the dry product shall be collected and disposed in a sanitary landfill.



IMPERMEABLE TO AIR

CONCRETE with
AETERNUM

1305

TEKNA CHEM SPA - via Sirtori z.i.
20838 Renate (MB) - ITALY

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1305 – CPD – 1146
EN 934-2

AETERNUM

Additivo riduttore d'acqua ad alta
efficacia / superfluidificante T 3.1 /
3.2

Contenuto max di cloruri..... 0.1%
Contenuto max di alcali..... 0.1%
Sostanze pericolose assenti



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