

MasterSuna SBS 3890

Specific additive for concrete for the use of "difficult" sands. Sand Blocker Solutions.

Material description

MasterSuna SBS 3890 is an innovative liquid additive proposed with the concept of Sand Blocker Solutions, specially designed for the packaging of concrete in which sands considered "difficult" are used due to the presence of clayey materials.

MasterSuna SBS 3890 has been specially designed in the research and development laboratories of Master Builders Solutions to solve problems related to the availability at some production sites and batching plants of concrete, sand and fine materials with high adsorption characteristics of reducing additives. water.

Field of application

The use of MasterSuna SBS 3890 is recommended for the preparation of medium and high initial workability concrete and in particular when a good maintenance of workability is required.

MasterSuna SBS 3890 can be used to package:

- ready-mixed concrete according to EN 206;
- concrete produced at the concrete mixing plant on site;
- pumped concrete.

MasterSuna SBS 3890 must always be used in combination with a water reducing additive from the MasterGlenium or MasterEase line available at the batching plant.

Using difficult sands for concrete

Aggregates for concrete are defined by standard EN 206-1, EN 12620 and in greater detail by UNI 8520-2 which defines the essential characteristics and requirements of aggregates and in particular of sands.

The factors that can affect the properties of concrete are listed below:

- shape of the granules and mineralogical characteristics (petrographic examination);
- adsorption;
- particle size;

- content and nature of the fine materials (presence of clayey minerals);
- content of compounds containing sulfur.

The quality of the fines is defined as passing through the sieve 0.063 mm and the acceptance limits for the use of fine materials (powders) are for the equivalent in SE sand (10):

- greater than or equal to 80 if it is an end section derived from uncrushed aggregate;
- greater than or equal to 70 if it is an end section derived from crushed aggregate; and the value of Methylene Blue (MB) determined on the 0/2 mm fraction, less than or equal to 1.5 g / kg.

In order to allow the user to take the necessary precautions to compensate for the effect of the presence of clay minerals, aggregates with SE (10) <80 and MB > 1.5 g / kg can be used provided that it is declared the value of MB.

The chemistry of Sand Blocker Solutions

The concept of Sand Blocker Solutions is applied to sands and for the purposes deriving from sands which, according to UNI EN 933-8, do not fall within the values specified in sand equivalent (SE 10) or in the value of Methylene Blue (MB) according to UNI EN 933-9.

In the presence of this type of expansive clayey minerals such as montmorillonites or with particular types of natural pozzolans, in even high concentrations in concrete mixtures, it is often noted that the addition of water reducing additive, with dosages recommended by the manufacturer, which can vary from 0.8 to 1.2% is not sufficient to cause the dispersion of the cement particles such as to have a good initial fluidization and, on the other hand, this fluidization is not maintained in the time necessary for transport and installation in opera.

In some cases, the problem can be solved by adding high dosages of water reducer with, however, consequent problems on the side of bleeding or delayed setting times.

The explanation of this phenomenon is due to the fact that the dispersant is trapped within the porosity of the materials with physical interactions and is no longer available in solution for the dispersion of the cement particles.

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The macromolecules of MasterSuna SBS 3890 are characterized by a very high affinity with the expansive clay minerals that can contaminate the sands and the ends with which the concretes are made.

MasterSuna SBS 3890 is a polymer that has a mild water reducing effect but acts as a sacrificial agent as its macromolecule has been designed to have a great affinity with clayey or porous materials such as pozzolans. It is then immediately trapped by the adsorbent materials thus leaving the water reducer free to optimally disperse the cement paste. In this way, the correct initial fluidity of the concrete mix is guaranteed, its maintenance of workability without any effect of setting delay and on the mechanical resistance to short curing.

For the above, MasterSuna SBS 3890 must always be used in combination with a water reducing additive from the MasterGlenium or MasterEase line available at the batching plant.

Advantages for the concrete manufacturer

The unique performance of MasterSuna SBS 3890 in combination with a water reducer from the MasterGlenium, MasterEase or MasterCO₂re lines allow concrete with low A / C ratio and S3 / S4 / S5 consistencies to maintain workability, depending on the dosages, even for more than 90 minutes without delays or reduction of mechanical compressive strengths during short curing.

MasterSuna SBS 3890 offers the following benefits when used in the production of concrete with "problematic" sands according to EN 12620 and UNI 8520-2:

- excellent compatibility with crushed aggregates;
- production of concrete with sand having different values of methylene blue;
- modulable to the different levels of clayey impurities;
- improves the rheology and appearance of the concrete;
- maintenance of workability without setting delays.

Compatibility

It is recommended to use it in combination with:

- air entraining additive of the MasterAir line for obtaining concrete that is durable to freeze and thaw cycles (according to UNI EN 206 and UNI 11104);
- activated and compacted fume silica MasterLife MS 610 to further improve durability in particularly aggressive environments or for very high strength concrete ($R_{ck} > 100$ MPa).

In addition, the use of auxiliary products is recommended:

- MasterKure curing agent for the protection of fresh concrete parts exposed to air;
- release agent of the MasterFinish line to facilitate the dismantling operations and to improve the facing.

Dosage

MasterSuna SBS 3890 is generally used at a dosage ranging from 0.15 to 0.3 liters per 100 kg of binder, in rheoplastic concretes. Other dosages may be requested according to the specific characteristics of the sands used.

Different dosages are possible in relation to the specific working conditions, and in any case after consulting the technical staff of Master Builders Solutions Italia Spa.

Packaging and storage

MasterSuna SBS 3890 is available in 1.000L tanks and bulk in tanker. Samples available in 10L canisters.

It is recommended to store the product at a temperature not lower than + 5 °C. In case of freezing, heat the product to at least 30 °C and mix again.

Directions for use

MasterSuna SBS 3890 is a ready-to-use liquid that is introduced into the concrete mixer after the other components of the concrete have been loaded and mixed.

- The addition of additive on dry aggregates or cement is not recommended because it decreases the fluidifying or water reduction effect.

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- To obtain the maximum fluidifying effect it is advisable to add the additive to the wet concrete (consistency S1) after having introduced 80-90% of the mixing water and mixed the mixture well.

To maximize the effectiveness of MasterSuna SBS 3890 it is recommended to add it before the water reducing additive.

Technical Information	
Form	Liquid
Relative density (g/cc at 20°C)	1.110 – 1.140

Compatibility

MasterSuna SBS 3890 is not compatible with the additives of the MasterRheobuild line.

Safety information

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 additional technical information, brochures, references, technical reports and technical support please visit www.master-builders-solutions.com/it-it or alternatively contact infomac@masterbuilders.com.

Scan QR code to visit the product page and download the latest version of this technical data sheet and any additional documentation.



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Disclaimer

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.

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.

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