

MASTERSET[®] 100 HC

Liquid hydration inhibitor for concrete

Description

MasterSet 100 HC is a ready-to-use, liquid admixture for making more uniform and predictable high performance concrete while retarding its setting time by controlling the hydration of portland cement and other cementitious materials to facilitate extended placing and finishing operations.

Concrete technology innovation

The development of MasterSet system is a technological breakthrough in the concrete industry. It is a cost-effective alternative to the disposal of return plastic concrete and concrete wash water. It also enables possibilities of maintaining fresh properties in long haul supplies due to traffic congestion and deep tunnels & mines.

Through its numerous applications, the MasterSet system will allow ready-mix & site-mix producers to more efficiently utilise their concrete materials on daily basis.

Uses

- Pumped concrete, wet-mix shotcrete and conventionally placed concrete
- Plain, reinforced, precast, prestressed, lightweight and normal weight concrete
- Stabilisation of concrete wash water
- Stabilisation of returned plastic concrete
- Stabilisation of freshly batched concrete for long hauls

Advantages

The set-retarding characteristics of MASTERSET 100 HC aid in the production of concrete with the following special qualities:

- Improved workability
- Reduced segregation
- Superior finishing characteristics for flatwork
- Moderate to extended retardation
- Provides flexibility in the scheduling of placing and finishing operations
- Offsets the effects of too-early hardening during extended delays between mixing and placing
- Helps eliminate cold joints
- Allows for dead-load deflection to take place (before concrete sets) in extended pours for bridge decks, cantilevers, nonshored structural elements, etc.
- Lowers peak temperature and/or rate of temperature rise in mass concrete
- Reduces thermal cracking
- Effective as a single admixture or as a component in a BASF admixture system

Typical Properties

Aspect	: Pink free flowing liquid
Relative density	: 1.08 ± 0.02 at 25°C

Chloride ion content	: < 0.2%
Solubility in water	: Miscible

Standards compliance

- ASTM C-494 Type B
- EN 934-2:T8
- IS:9103-1999

Specification Clause

The hydration inhibiting admixture shall be MASTERSET 100 HC, a pink coloured liquid admixture based on BASF cement hydration control technology. The stabiliser shall comply with ASTM C 494 type B and shall have specific gravity less than 1.1; shall be free of chlorides. The stabiliser shall be chemically compatible with activator, if need to be used.

Dosage

MasterSet 100 HC is recommended for use at the rate of 260ml/100kg of cementitious material for most concrete mixes using average concrete ingredients for around four hours retention. For every additional hour retention, additional dosage of 65ml/100kg of cementitious material may be sufficient. The maximum recommended dosage of MASTERSET 100 HC is 8L. Because of variations in job conditions and concrete materials, dosage rates other than the recommended amounts may be required. In such cases, contact your local BASF representative.

Application Procedures

Wet-mix shotcrete: Premix aggregates with cement and one half of the mixing water. Add MASTERSET 100 HC along with superplasticizer under continuous mixing. Premixed with the second half of the mixing water or after all the water have been added. Normal mixing time is sufficient. To void slump loss, the recommended water content is 200 l/m³. In the event of unexpected delays, a later addition of 0.3 – 1% of MASTERSET 100 HC is possible to prolong storage time for a few hours.

Stabilisation of Concrete Washwater: The procedure for overnight / weekend stabilisation of concrete wash water is easy, but it is important that each step be correctly followed as under:

1. The ready-mix truck should be empty of any returned concrete. Add 150 to 180 litres of water to the truck drum.
2. Back up the concrete wash water to the rear of the truck drum.
3. Dispense 1000 to 2000 ml of MASTERSET 100 HC into concrete wash water for overnight stabilisation. For weekend stabilisation, dispense 2000 to 3000 ml into the



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concrete wash water. Safety glasses or goggles and rubber gloves must be worn when handling the MASTERSET 100 HC.

4. Return the stabilised concrete wash water to the front of the drum and mix at high speed for 1 minute.
5. Back up the stabilised concrete wash water quickly to the rear of the drum for maximum fin cleaning
6. Return the stabilised concrete wash water to the front of the drum and mix at high speed for 1 minute. Park the truck for the night or weekend.
7. The next day or after a weekend, reduce the water content of the freshly manufactured concrete by the amount of water added in step No. 1.

Returned concrete/ Long haul concrete

Calculate the total MASTERSET 100 HC dosage in ml, dispense in to the fresh concrete and mix for 7 to 9 minutes at normal mixing speed. This should be completed no later than 90 minutes from the initial batching. After mixing is completed and the ready mix truck is in transit, its mixing drum must be turning as slowly as possible. In case if the activation is needed dispense the

MasterSet as per the suggestive dosage based on concrete temperature and transit time.

Rate of hardening

The temperature of a concrete mix and the ambient temperature (forms, sub base, reinforcement, air, etc.) affect the hardening rate of concrete. At higher temperatures, concrete hardens more rapidly which may cause problems with placing and finishing. The main function of MASTERSET 100 HC is to retard the set of concrete. Within the normal dosage range, it will generally extend the working and setting times of concrete containing normal Portland cement, fly ash, slag, and silica fume by approximately 1 hour to 5 hours compared to a plain concrete mix, depending on job materials and temperatures. Trial

mixes should be made with job materials under approximate site conditions to determine the dosage required.

Compressive strength

Concrete produced with MASTERSET 100 HC admixture will have rapid strength development after initial set occurs. It develops higher early (24-hour) and higher ultimate strengths than plain concrete when used within the recommended dosage range and under normal, comparable curing conditions.

Packaging

MASTERSET 100 HC is supplied in 225kg drums.

Storage and Shelf life

MASTERSET 100 HC must be stored where temperatures do not drop below +5°C. If product has frozen, thaw at +5°C or above and completely reconstitute using mild mechanical agitation. Do not use pressurized air for agitation. Store under cover, out of direct sunlight and protect from extremes of temperature.

Shelf life is 12 months when stored as above.

Failure to comply with the recommended storage conditions may result in premature deterioration of the product or packaging. For specific storage advice consult your local BASF representative.

Safety precautions

As with all chemical products, care should be taken during use and storage to avoid contact with eyes, mouth, skin and foodstuffs (which can also be tainted with vapour until product fully cured or dried). Treat splashes to eyes and skin immediately. If accidentally ingested, seek immediate medical attention. Keep away from children and animals. Reseal containers after use. Do not reuse containers for storage of consumable item. For further information refer to the material safety data

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sheet. MSDS available on demand or on Master Builders Solutions web site.

Note

All BASF Technical Data Sheets are updated on regular basis; it is the user's responsibility, to obtain the most recent issue.

Field services where provided, does not constitute supervisory responsibility, for additional information contact your local BASF representative.

Disclaimer

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