

MAKE SET®

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Supersedes all previous publications



Production Description

LAMBCO® MAKE SET® is a liquid calcium chloride solution designed to be added to portland cement mixes in place of water to accelerate the setting time. It provides an early hydration of portland cement, increases workability, and aids in the attainment of the required strength and durability of cured concrete.

Of the many chemical admixtures developed, MAKE SET® is one of the oldest and best known for use in portland cement concrete. The principal result of adding it to concrete is to increase the rate of hydration for the cement. This faster rate of hydration, especially for concrete placed during lower temperatures, produces three major benefits: reduction in time of set, attainment of early strength, protection in colder weather when set times are delayed. MAKE SET® will also densify concrete and reduce its permeability allowing very little water vapor to pass through concrete design as being watertight.

There is a reduction in the rate of cement hydration as temperatures decrease. The use of MAKE SET® is common during cold weather to accelerate the set of portland cement based mixes.

Quick Set Plug Usage

Substitute MAKE SET® for the water normally used with a portland cement and sand mix. Mix to a thick paste and place immediately in hole or crack. Set time 3-5 minutes. There is a reduction in the rate of cement hydration as temperatures decrease, therefore MAKE SET® can be used anytime temperatures drop below 65°F (18.3°C).

Mortar, Stucco, Pool/Marcite Usage

MAKE SET® can be used effectively in portland cement mortar and stucco, and in most pool/marcite coatings containing portland cement. The accelerating effect takes place only on portland cement, so the quantity of MAKE SET® used should be as per the schedule printed in the Mixing Proportions section of this document.

Ready-Mix Usage

MAKE SET® can be used with two general classes of material supplementary to portland cements - fly ash and blast-furnace slag. Initial evaluation of usage rate can be based on the combined weight of portland cement and fly ash or slag, but downward adjustments of MAKE SET® may be necessary.

Precast Concrete Usage

In the production of many types and shapes of concrete units (blocks, pipes, stepping-stones, lintels, burial vaults), it is desirable to remove the forms as quickly as possible for early re-use and increased production. The addition of MAKE SET® helps in obtaining quicker set and higher early strength for early form removal. It is compatible with low-pressure steam curing and may be beneficial in reducing steam time. Additional benefit is the reduced breakage of precast units due to the higher early strength.

Installation

Before using this product, please refer to the Material Safety Data Sheet for additional information. Proper handling precautions MUST be followed. The conditions of use, handling, and application of this product and information (whether verbal or written), including any suggested formulations and recommendations, are beyond Lambert Corporation's control. Therefore, it is imperative that testing be performed to determine satisfaction and suitability for intended use and health, safety, and environmental issues. The following information is meant as a guideline of best industry practices. While Lambert Corporation does suggest adherence to these guidelines, unforeseeable variables and/or developed successful installer practices may cause variation in methods and/or results.

Ready Mixed Concrete

When ready mixed concrete is used, MAKE SET® should be added to mixing water at the plant only if the concrete is to be placed within one (1) hour after the start of the mixing. Otherwise, it should be added at the job site, allowing approximately three (3) minutes time or 30 revolutions of the mixer. The total quantity of mixing water is reduced by the volume of MAKE SET® used.

Mortar, Stucco, Marcite Mixes

Add MAKE SET® directly to the mixing water for each batch. DO NOT ADD MAKE SET® DIRECTLY TO THE CEMENT.

Limitations

The contribution of admixed calcium chloride to corrosion of embedded metals has been a subject of differing opinions. Where steel, iron, or metal is completely embedded in concrete, it is recommended that surfaces coming in contact with concrete be coated with Lambert's pourable epoxy or semi-fibrated asphalt emulsion waterproofing product. If corrosion potential is still a concern, the PURCHASER and/or USER shall determine the suitability of this product for his intended use and PURCHASER and/or USER assumes all liabilities and risks whatsoever in connection with its use.

Test batches should always be done when using new material or new proportions. To test for use in specific work, the type of cement, pozzolan, aggregates, and admixtures used shall be those proposed for the work. Add the MAKE SET® in the same manner and at the same time during the batching and mixing sequence as it will be added on the job. Proportion the concrete mixtures to have the same cement content specified for use in the work. Cements of the same type and even of the same brand name can have wide variations in their setting times and rates of strength development. MAKE SET® triggers most air-entraining agents when mixed in the same solution; it is important that all materials be kept in separate solutions and introduced separately into the mixer.



Packaging:

55-gal (208.2-L)
Drum

5-gal (18.9-L)
Pail



ADMIXTURES

MAKE SET®

MASTER FORMAT: 03 31 00

Technical Data

Applicable Standards

- ASTM D- 98, TYPE L
- ASTM C- 494, Type C*

*MAKE SET® can be substituted for all specifications calling for the use of calcium chloride solutions used in portland cement. MAKE SET® is classified as a Type C accelerating chemical admixture for concrete in the ASTM C - 494 Standard Specification Chemical Admix-tures for Concrete. The specific effects produced by chemical admixtures may vary with the properties of the other ingredients of the concrete. If ASTM C - 494 must be met for a specific project, the actual materials to be used must be checked with the MAKE SET® to establish performance characteristics of the concrete as expressed in the statement from C- 494, Section 11.4.

Coverage

MIXING PROPORTIONS TO ACCELERATE CONCRETE

AIR TEMPERATURE		MAKE SET® per 94 lbs (42.6-kg) Cement in Mix
°F	°C	
80+	26.7+	1-pint (0.5 liters)
79	21 to 26	1-qt (0.9 liters)
50 to 69	10 to 20.6	1 ½-qt (1.4 liters)
33 to 49	0.6 to 9.4	½-gal (1.9 liters)
24 to 32	-4.4 to 0	¾ -gal (2.8 liters)
18-23	-7.8 to -5	1 gal (3.8 liters)

The chart above indicates temperatures and quantities of MAKE SET® use per 94 pounds (42.6kg) of Portland cement that will accelerate the concrete mix from a normal 3 hour initial set to approximately 1 hour initial set. Mortar mixes of lesser weights will require a reduction in MAKE SET®. For quick set concrete, substitute MAKE SET® in place of water in the mix design. In premixed mortar mixes for reduced water ratios, less shrinkage and greater plasticity, use 1 quart (0.9 liters) per bag of mortar mix.

Clean-Up

Clean up with soap and water. Dilute small spills cautiously with plenty of water. Mop into container and dispose of according to local regulations.

First Aid

- Skin** - Where skin contamination does occur, the affected area should be washed thoroughly with clean water while removing contaminated clothing; may cause skin irritation, contact with broken skin can cause necrosis, medical attention should be obtained if necessary.
- Eyes** - May irritate or burn eyes, Contaminated eyes should be flushed thoroughly with large quantities of water for at least 15 minutes; get medical attention promptly.
- Ingestion** - If ingested, immediately give 2-4 glasses of water; induce vomiting. Call physician.
- Inhalation** - Move to fresh air.

KEEP OUT OF REACH OF CHILDREN.
FOR INDUSTRIAL USE ONLY.