



CHEM-CRETE® MAG-SIL®

Intermixed Concrete Enhancer, Powder Form

PRODUCT DESCRIPTION

CHEM-CRETE® MAG-SIL® (MAG-SIL®) is a patent pending and revolutionary powdered concrete enhancer manufactured by International Chem-Crete Company of Richardson, Texas. MAG-SIL® is the latest addition to the family of dual crystallization products for improving the engineering properties and durability of Portland cement concrete (PCC). This technological advancement, developed by Mr. Radi Al-Rashed of International Chem-Crete has been proven effective in laboratory-based studies as well as field trials.

MAG-SIL® can be added to the concrete mix at the time of batching similar to other powdered supplemental cementitious materials (SCMs) such as fly ash, ground granulated blast furnace slag and silica fume. The materials can also be incorporated into the Portland cement at the point of manufacture. Regardless to the method of incorporation, extensive testing has clearly shown the performance benefits including improvements to the compressive and flexural strength of the PCC, better workability, decreased permeability, reduced alkali silica reactivity (ASR) potential, decreased chloride intrusion, lesser potential for drying shrinkage cracking and others.

FIELDS OF APPLICATION

MAG-SIL® has a wide range of suitable applications for which it is a cost effective and sustainable solution to PCC durability issues. In addition, improvements to the basic engineering properties of PCC will have positive implications in constructability and overall performance. An abbreviated list of potential applications includes the following:

- ☐ Highway and airfield pavements.
- ☐ City streets, sidewalks, driveways, light standards, etc.
- ☐ Intermodal facility concrete pavements.
- ☐ Concrete bridge piers, beams, decking and barriers.
- ☐ Port facilities, particularly in areas exposed to sea water.
- ☐ Precast PCC including concrete pipes and tilt up walls.
- ☐ Concrete foundations, caissons and other in-ground PCC applications.

PRODUCT FEATURES

The MAG-SIL® powdered concrete enhancer has the following features:

- ☐ Applicable to central batch and ready mix concrete production.
- ☐ Non-toxic and does not require special handling or storage.
- ☐ Does not interfere with or alter chemical admixture performance.
- ☐ Can be used with other supplemental cementitious materials (SCMs).

- ☐ Promotes more thorough and complete hydration on Portland cement.
- ☐ Significantly reduces water permeability of the concrete.
- ☐ Improves both compressive and flexural strength, particularly at 56 days and greater.
- ☐ Reduces ASR potential and damage due to chloride intrusion and freeze/thaw cycles.
- ☐ Cost effective and sustainable.

PACKAGING

Product	Packaging
CHEM-CRETE® MAG-SIL®	2204 Lb (1000 Kg) SUPER SACK
	44 Lb (20.00 Kg) PAIL

TECHNICAL DATA

The laboratory test procedures used in the product evaluations conformed to ASTM standard protocols for sample preparation, entrained air content, curing, compressive and flexural strength tests, permeability, chloride intrusion, freeze/thaw, ASR potential (mortar bar expansion tests), abrasion resistance and additional tests as required. Test results for both the laboratory and field evaluations are available on request.

DIRECTION FOR USE

Dosage: the optimal amount of MAG-SIL® for most uses, as determined by laboratory testing, is 2 percent by dry weight of cement. If the MAG-SIL® is to be added at the time of batching, this equates to adding 2 pounds per hundred weight of cement. If the MAG-SIL® is interblended at the point of cement manufacture, no additional material is added during batching.

Mixing: typical batch sequencing should be used with the addition of the MAG-SIL® material. The cement, coarse, intermediate and fine aggregates, SCMs, chemical admixtures and water should be charged into the mixing drum at a central batch facility or in the truck mixer for a ready mixed plant according to standard operational protocol. The MAG-SIL® should be added with either the cement or SCMs depending on the plant set-up and control system.

Thorough mixing is the key to enhanced performance when using the MAG-SIL® material. Additional mixing time will generally not be required, particularly with a high shear mixer. It is very important not to exceed the maximum water/cementitious materials ratio specified in the mixture proportioning. If trim water is added in the case of a ready mixed operation, it is very important that adequate mixing is achieved onsite after addition of the water.

Placement and Curing: standard placement techniques will not be altered by the addition of the MAG-SIL[®], including consolidation and finishing operations. Note however that the workability may be improved somewhat over the standard mix without the MAG-SIL[®] addition.

Curing should be initiated as soon as practical after final texturing, particularly if low humidity, high temperature and windy conditions are encountered. Although the MAG-SIL[®] will provide a measure of internal curing and reduce the development of drying shrinkage cracks, it is critical that adequate and timely curing be performed.

CLEANING

No special precautions or clean-up procedures are required for concrete containing MAG-SIL[®].

STORAGE

MAG-SIL[®] is shipped in sealed plastic containers providing a shelf life of approximately 2 years or more if stored in a cool and dry environment. Open containers should be inspected prior to use and in general, used as soon as possible.

SAFETY PRECAUTIONS

MAG-SIL[®] is a non-flammable and non-toxic powder that presents no special safety hazards. However, standard safety protocols for handling finely divided powdered materials should be adhered to. The use of gloves and a dust mask are highly recommended due to the high alkalinity of the material when

wetted. In case of contact with skin or eyes, the area should be flushed immediately with fresh water and medical advice sought if any negative symptoms occur.

TECHNICAL ASSISTANCE

Technical assistance is available by calling International Chem-Crete at 972 671-6477.

WARRANTY

LIMITED WARRANTY: International Chem-Crete Inc. warrants that, at the time and place we make shipment, our materials will be of good quality and will conform to our published specifications in force on the date of acceptance of the order.

DISCLAIMER: The information contained herein is included for illustrative purposes only and, to the best of our knowledge is accurate and reliable. International Chem-Crete Inc. is not under any circumstances liable to connection with the use of information. As International Chem-Crete Inc. has no control over the use to which others may put its products, it is recommended that the products be tested to determine the suitability for specific applications and/or our information is valid in particular circumstances. Responsibility remains with the architect or engineer, contractor and owner of the design, application and proper installation of each product. Specifier and user shall determine the suitability of the product for specific application and assume all responsibility in connection therewith. MA24619.

Manufactured By:



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