



Use of KIM® Admixture: Instructions for Site Superintendent

IMPORTANT

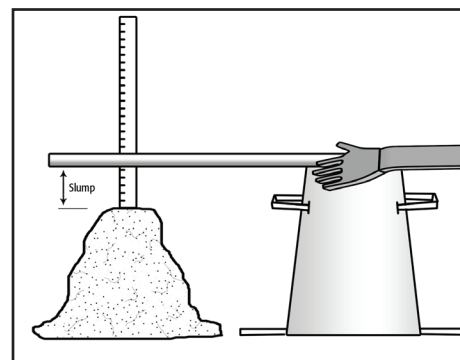
You are making a waterproof membrane out of the concrete/shotcrete. This is different from traditional construction, where the concrete just forms the structure. The KIM concrete you are placing will be the only barrier to water penetration. This means that common defects found in typical concrete cannot be tolerated. Poor consolidation, unplanned cold joints, cracks, penetrations, contaminations, etc. will all result in a leaking structure. To avoid leakage and to achieve success, you must follow the critical instructions outlined in this document.

EFFECT ON PLASTIC CONCRETE

The KIM® admixture has been specially formulated to meet the requirements of projects in different climate conditions as follows:

- **KIM-HS:** This version of KIM® is used for most common applications. KIM-HS is compatible with common admixtures, such as plasticizers, accelerators, retarders and air-entrainers.
- **KIM-AE:** This version of KIM® is specially designed for concrete requiring air-entrainment to resist freezing and thawing cycles. KIM-AE will increase air content by 3-5 %. Adjust or remove any air-entraining admixtures accordingly.
- **KIM-ES:** This version of KIM® is specially designed for use in hot climates and mass concrete. KIM-ES will prolong the slump retention of the concrete and delay the initial setting time. Adjust or remove set retarding admixtures accordingly.

All versions will typically delay the setting times of the concrete. Consult with a Kryton Technical Services Representative for the most appropriate KIM® admixture for your project.



SAFETY

- Before using or handling, read the Material Safety Data Sheet for this product.
- Safety precautions for KIM concrete are no different than for normal concrete.
- KIM powder becomes caustic when mixed with water or perspiration. Take appropriate safety precautions to prevent contact with skin or eyes and to prevent breathing dust.

Be aware of the differences in air entrainment and retardation between KIM-HS, KIM-AE & KIM-ES.

General influence of KIM® admixture on concrete plastic properties at standard laboratory conditions (actual field setting times may be shorter):

	Initial Setting Time* (hh/mm)	Air Content* (%)
Plain	3:00	1.5
KIM-HS	4:30	1.6
KIM-AE	4:00	6.0
KIM-ES	6:00	1.6

* This table is to be used as a guide only. Actual setting times and air contents depend on mix design, temperature, and the influence of other chemical admixtures and must be based on trial mix.

PRE-POUR SITE MEETING

The Site Superintendent must arrange a meeting that includes himself, a Kryton representative, the concrete supplier and applicable representatives of the forming, placing, finishing, or shotcreting contractors. The meeting needs to be scheduled well in advance of the initial concrete pour in order to communicate any modifications required for a successful concrete project. Discussion will include the following:

- Delayed setting times of KIM concrete – particularly in cold weather
- How set delay may affect form pressure or stripping schedules
- How set delay and air content may affect the slab finishing
- Krystol Waterstop System™ installation considerations



- Importance of controlling water content of the concrete
- Importance of proper curing procedures
- Review of application instructions 102 to 106 (plus 107 and 108 for shotcrete) and extended warranty documents if applicable.

SLUMP & CONCRETE HANDLING

- KIM increases the slump of the concrete. The amount of increase can vary greatly depending on the other ingredients in the mix.
- It is recommended that cast-in-place concrete be batched at water to cementitious ratio (WCR) of approximately 0.40 (0.37 for shotcrete). The maximum total WCR is either 0.45 (0.40 for shotcrete) or the specified maximum WCR. This includes all water present in the concrete and any added on route and on site.
- If the slump is below specification, add a mid or high range water reducer to achieve the required slump. Only add additional water with the approval of the quality control technician (to the maximum specified WCR). Record all water additions on the batch ticket and do not exceed the specified WCR.
- Under some circumstances, you may observe slump loss at 25-40 minutes. This is false set and slump may recover with continued mixing. False set may be avoided by dosing KIM on the project site. Avoid placing KIM during the false set period.
- The addition of water without supervision and approval may void the manufacturer's warranty.

CONSTRUCTION JOINTS & THE KRISTOL WATERSTOP SYSTEM™

- The Internal (pyramid) joint design should be used at all horizontal joint locations such as slab-to-wall joints. See Application Instruction 201 for installation details.
- The External (wedge) joint design should be used at all vertical joint locations such as wall-to-wall and/or slab-to-slab joints. The External method is installed in two stages. It requires a treatment application to the joint area and that a keyway be formed into the joint location. The keyway will be filled after the concrete has cured. See Application Instruction 202 for installation details.

PLACING AND FINISHING

- Superior consolidation of the concrete is essential to achieve the performance and benefits of KIM.
- It is very important that there be no water or debris in forms when pouring a joint that is to be watertight.
- Place and finish in accordance with ACI guidelines.
- KIM improves flow, pumpability and placement properties of plastic concrete.
- KIM treated concrete will typically delay the initial and final setting times of the concrete. Adjust your finishing or stripping schedule accordingly. Evaporation retarder may be needed.

CURING

- KIM improves the internal cure of concrete. However, KIM is not a replacement for proper curing procedures.
- Proper curing is essential to achieve the performance and benefits of KIM. Cure in accordance with ACI 308.1 guidelines.
- Wet curing the concrete with a fog mist spray, sprinkler or wet burlap for 5 to 7 days is recommended. Protect from rain, excessive wind, and sun.
- Alert the manufacturer immediately of any concerns.