Hard-Cem

Integral Hardening Admixture for Concrete.

DESCRIPTION

Hard-Cem is an Integral Hardening Admixture (IHA) used to protect concrete against abrasion, erosion, chipping, and dusting.

IMPORTANT

Hard-Cem is not a substitute for proper mix proportioning, placement, finishing, and curing. Installers must follow ACI Guidelines and in particular, must pay attention to proper finishing and curing practices if optimum wear resistance is to be achieved.

SAFETY PRECAUTIONS

Read and follow the Safety Data Sheets (SDS) for this product (available at www.Kryton.com). For professional use only.

DOSAGE AND YIELD ADJUSTMENT

- Dosage is 40 kg per cubic meter of concrete.
- Add 3 x 13.4 kg bags to each cubic meter of concrete.
- In the United States, dosage is 66 lbs. per cubic yard; add 2 x 33 lb. bags to each cubic yard of concrete.
- Remove an equal weight of sand from the concrete mix design to maintain proper mix proportions and water demand.
- For specialized applications such as screed or topping mixes, consult Kryton's Technical Services for a dosage recommendation.

Hard-Cem is packaged in pulpable, mixer-ready bags that can be added unopened into the concrete mixer. For truck mixing, the bags can be added either before or after the truck is loaded with concrete. Mix at high speed for at least one minute per cubic meter (or cubic yard) and for a minimum of 3 minutes. For a central mixer, add the bags any time prior to the final mixing period.

Trial batches are recommended to ensure satisfactory disintegration of the bags. If the bags do not fully break down, the slump during mixing may be either too high or too low. You may improve results by extending the mixing time or by adjusting your batching order: In high slump mixes, hold back some water or plasticizer if possible until after Hard-Cem has been mixed in. For low slump mixes, add Hard-Cem with the coarse aggregate and water if possible and mix before adding cementing materials. Alternatively, you may open and empty the bags into the mixer. Be sure to wear the appropriate personal protective equipment.

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APPLICATION INSTRUCTION 8.11

CONCRETE MIX COMPATIBILITY

- Hard-Cem is compatible with all concrete materials and admixtures. There are no limitations on cement types, supplementary cementing materials (SCM's), chemical admixtures, fibers (steel and synthetic) or color pigments.
- Hard-Cem does not change the concrete's slump, water demand, air content, setting time, concrete temperature, or the performance of other chemical admixtures.
- Hard-Cem does not change the concrete's compressive strength or drying shrinkage.

FINISHING

- Effective finishing is critical to achieving optimum abrasion resistance. Use only experienced concrete finishers.
- Hard-Cem may reduce the total amount of bleed water. Monitor slabs closely so that final finishing is started at the correct time.
- Take appropriate action to prevent premature drying of the surface, both before and after finishing.
- Do not apply additional water to the surface during finishing.

CURING AND PROTECTION

- Proper curing is just as important as finishing to achieving optimum abrasion resistance.
- Start curing as soon as possible after finishing operations are complete.
    - Follow the curing procedures in ACI 308 – Guide to External Curing. Wet cure the concrete with a fog mist spray, sprinkler, or wet coverings (burlap, curing blankets) for 7 days or until 70% of the specified compressive strength is attained.
    - Alternatively, immediately apply a curing compound conforming to ASTM C309.
- Protect freshly placed concrete from rain, freezing temperatures or rapid drying.
- Hot Weather – Follow ACI 305R - Use sunshades, windbreaks, evaporation retarders in hot or windy weather to protect concrete from drying both before and after finishing.
- In cold weather – Follow ACI 306R. Avoid the use of unvented combustion heaters in enclosed spaces, as the carbon dioxide emitted from these heaters can cause carbonation of the slab and reduce abrasion resistance.

SAWCUTS, POLISHING, STAMPING AND APPLICATION OF SEALERS

- No difference in procedures between regular concrete and Hard-Cem concrete.

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