

# TECHNICAL DATA SHEET

Integral Hardening Admixture



## Hard-Cem®

Product Code: K-801

### DESCRIPTION

Hard-Cem® is an integral hardening admixture used to increase abrasion and erosion resistance of concrete.

Hard-Cem is added to the concrete at the time of batching to increase the abrasion resistance of the concrete and extend concrete wear life. It outperforms and overcomes deficiencies of labor intensive surface applied hardeners, and can be used to enhance durability of both air-entrained and non-air-entrained concretes. Since it is integral, Hard-Cem can be used to harden horizontal, vertical or inclined concrete and shotcrete surfaces.



### FEATURES & BENEFITS

- Extends concrete wear life 2 to 6 times under harsh conditions
- Lowers installed cost\*
- Expedites construction schedules\*
- Reduces maintenance costs and improves concrete sustainability
- Improved work site safety and conditions (dust free)\*
- Improved quality control\*
- Only hardener that can be used on air-entrained concrete\*
- No side effects on concrete water demand, workability, set time, strength development or shrinkage
- Full depth concrete hardening\*
- Can be used in horizontal, vertical or inclined concrete
- Easy to use; added to the concrete

\*compared to surface applied (dry shake) hardeners

### RECOMMENDED USES

Hard-Cem can be used in any ready mix, shotcrete or precast concrete to improve abrasion and erosion resistance, and extend the wear life of the concrete.

### PROPERTIES

Physical Properties	
Appearance	Black Powder / Granular Material
Particle Size	50% < 100 microns
Specific Gravity	~3.55
Bulk Density	1,650 kg/m <sup>3</sup> (103 lb/ft <sup>3</sup> )
Effects on Plastic Properties	
Slump, ASTM C143	No change
Setting Time, ASTM C403	No change
Bleed Water, ASTM C232	Approximately 45% reduction
Entrained Air Content and Stability, ASTM C231	No change

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### Effects on Hardened Properties

Compressive Strength, ASTM C39, C192, (28 Days)	No change
Drying Shrinkage	No change
Freeze / Thaw Durability, ASTM C666 (300 cycles)	Passes*
Deicing Chemical Resistance ASTM C 672, (50 cycles)	Passes*
Abrasion Resistance, ASTM C627 Robinson Floor Tester (5000 revolutions)	66% reduction in mass loss compared to control
Abrasion Resistance, ASTM C779-C	50% reduction in wear over control

\*Air Entrained Concrete

## APPLICATION

Hard-Cem is fully compatible with commonly used admixtures and sealers. Dosage is 40 kg/m<sup>3</sup> (66 lb/yd<sup>3</sup>), displacing approximately 30 kg/m<sup>3</sup> (50 lb/yd<sup>3</sup>) of conventional sand in the original concrete mix to maintain design yield.

Unopened bags can be added into the wet concrete only if sufficient wetting, mixing and dispersion within the concrete mix is ensured. Observe concrete discharge to verify full bag disintegration and no visible sign of bag fragments in the concrete. Test prior to use if in doubt. A suitable dust mask, eye protection, gloves and coveralls are recommended when manually dispensing bagged product.

When used in bulk, pneumatic unloading and dispensing of Hard-Cem is similar to that of Portland cement.

## LIMITATIONS

The addition of Hard-Cem will not replace good concreting practices – especially those related to mix proportioning, placing, finishing and curing. Concrete treated with Hard-Cem may be darker than normal Portland cement concrete.

## SAFETY

Read the Safety Data Sheet (SDS) for this product. For professional use only. Avoid contact with skin or eyes. Avoid breathing dust. Wear a dust mask, long sleeves, safety goggles and impervious gloves.

## PACKAGING

Hard-Cem is available in

- 20 kg (44 lb) pulpable mixer ready bags; 2 bags per m<sup>3</sup> (1.5 bags per yd<sup>3</sup>)
- 13.4 kg pulpable mixer ready bags; 3 bags/m<sup>3</sup>
- 33 lb pulpable mixer ready bags; 2 bags/yd<sup>3</sup>
- 1,600 kg (3,527 lb) super bags
- Bulk pneumatic truckloads

## SHELF LIFE

Hard-Cem is shelf-stable when stored in its original packaging and protected from sources of moisture.

## WARRANTY

Kryton International Inc. (Kryton) warrants that Kryton products are free from manufacturing defects and comply with the specifications given in their respective technical data sheet. Because conditions of use, such as site conditions, surface preparations, workmanship, concrete ingredients, weather, structural issues and other factors are beyond the control of Kryton, no warranty can be given as to the results of use. Purchaser agrees to seek the advice of qualified professionals and to determine for themselves the suitability of the products for their intended purpose and assumes all risks. Purchaser's sole remedy is limited to replacement of any product proven defective or at Kryton's option refund of the purchase price paid. THIS LIMITED WARRANTY CONTAINS THE ENTIRE OBLIGATION OF KRYTON. NO OTHER WARRANTIES, EXPRESS OR IMPLIED, SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. KRYTON SHALL NOT BE LIABLE UNDER ANY LEGAL THEORY FOR SPECIAL OR CONSEQUENTIAL DAMAGES. No representative of Kryton has the authority to make any representations or provision except as stated herein. Kryton reserves the right to change the properties of its products without notice.