

HARDONATE IH

Integral Hardener for Concrete

DESCRIPTION

HARDONATE IH is an integral hardening admixture used to increase abrasion and erosion resistance of concrete. **HARDONATE IH** 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 an integral admixture, **HARDONATE IH** can be used on horizontal, vertical or inclined concrete and shotcrete surfaces.

Each batch of **HARDONATE IH** is uniformly ground, segregated and recombined in a selected gradation with added dispersing and plasticizing agents. It easily mixes and disperses in concrete mix.

HARDONATE IH is completely inert, does not oxidize or rust and is unaffected by acids, alkalis and other harsh chemicals.

USES:

HARDONATE IH 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. Some typical application areas are;

- INDUSTRIAL FLOORS
- WAREHOUSES
- AIRCRAFT HANGARS
- LOADING BAYS
- CAR PARKS
- POWER PLANTS
- CHEMICAL PLANTS
- WORK SHOPS
- SHIPYARDS
- HELIPADS
- REFINERIES
- BAKERIES
- TEXTILE MILLS
- JUTE MILLS
- PHARMACEUTICAL PLANTS
- CEMENT PLANTS
- TOBACCO FACTORIES
- RAILWAY STATIONS
- SPORT FACILITIES
- SUPER MARKETS

FEATURES & BENEFITS:

- EXTENDS CONCRETE WEAR LIFE UP 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

METHOD OF APPLICATION:

HARDONATE IH is fully compatible with commonly used admixtures and sealers. Dosage is 40 kg/m³ (66 lb/yd³), displacing approximately 30 kg/m³ (50 lb/yd³) 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. 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 **HARDONATE IH** is similar to that of Portland cement.

PHYSICAL PROPERTIES

| | |
|------------------|----------------------------------|
| Appearance | Black Powder / Granular Material |
| Particle Size | 50% < 100 microns |
| Specific Gravity | ~3.55 Bulk |
| Bulk Density | 1,700 kg/m ³ |

PLASTIC PROPERTIES

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|--|-----------------------------|
| 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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HARDENED PROPERTIES

| | |
|---|---|
| Compressive Strength, ASTM C39, C192, (28 Days) | No change |
| Drying Shrinkage | No change |
| Freeze / Thaw Durability, ASTM C666 | No change |
| Deicing Chemical Resistance (Mass Loss), ASTM C 672, (50 cycles) | No change |
| Abrasion Resistance, ASTM C627 (Robinson Type Floor Tester 5,000 revolutions) | 66% reduction in mass loss compared to control (28 days curing) |

STORAGE & SHELF LIFE:

HARDONATE IH will retain its properties for at least 12 months when kept in the original packing.

PACKAGING:

Available in 50 kg and 25 Kg bags.

PRECAUTIONS

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

SAFETY

For professional use only. Avoid contact with skin or eyes. Avoid breathing dust. Wear a dust mask, long sleeves, safety goggles and impervious gloves.

TECHNICAL ASSISTANCE:

For further details and assistance for specific application requirements and for other product information please contact Mitchell.