

## **C<sup>2</sup> Hard™**

### **Advanced Economical Lithium-Silicate Hardener & Densifier for Concrete**

#### **DESCRIPTION**

C<sup>2</sup> Hard™ is the advanced economical, hardener and densifier for concrete surfaces and a much more effective alternative to conventional sodium or potassium silicate hardeners. This patented lithium silicate treatment deeply penetrates and reacts with the concrete to produce insoluble calcium silicate hydrate within the concrete pores. Conventional hardeners deposit high concentrations of sodium or potassium salts, which contribute to surface ASR, resulting in deterioration of concrete. Surfaces treated with C<sup>2</sup> Hard™ will resist damage from water, surface abrasion, eliminate dusting and simplifies maintenance. C<sup>2</sup> Hard™ should be used where the specification calls for just a hardened floor with or without burnishing and no grinding or polishing is required. Typically this product would be used on new slabs either at the time of placement or after a wet cure, chemical cure or after 28 days of curing or construction. C<sup>2</sup> Hard™ can also be use on a previously densified floor where sodium or potassium was used at one time and the surface is starting to dust or deteriorate.

#### **BENEFITS**

##### **Excellent Penetration**

Patented formulation of C<sup>2</sup> Hard™ contains a highly reactive lithium catalyst, which achieves a much greater penetration into the floor surface and triggers a much faster and more complete reaction with

the concrete than traditional sodium silicate.

##### **Durability**

C<sup>2</sup> Hard™ will outlast any other sodium or potassium densifiers. C<sup>2</sup> Hard™ contains chemicals heavy in silica, which reacts with calcium hydroxide in concrete, densifies and hardens the micro pores in the top layer of the concrete ("wear zone"), creating a permanent impregnation of the concrete floor. C<sup>2</sup> Hard™ is breathable and UV stable. Will not yellow, discolor, peel or flake.

##### **Greater Abrasion Resistance**

Concrete floors treated with C<sup>2</sup> Hard™ will significantly improve abrasion, in comparison to conventional sodium or potassium hardeners.

##### **Eliminates Dusting**

In ordinary concrete, tiny particles of dust are pushed to the surface through an upward force called hydrostatic pressure, resulting in efflorescence, which leads to dusting. C<sup>2</sup> Hard™ eliminates efflorescence and prevents dusting making concrete easy to maintain.

##### **Reduces or Eliminates ASR**

(Alkali Silicate Reaction) due to high lithium content. High concentrations of sodium or potassium salts, which will contribute to surface crazing and surface ASR, are not present in C<sup>2</sup> Hard™. Lithium will not absorb water or contribute to floor sweating.

##### **Reduces Tire Marks**

The rough, uneven texture of natural concrete causes tires to abrade, adding to their wear. A concrete floor treated with C<sup>2</sup> Hard™ will make the entire surface smooth, preventing this abrasion and leaving minimum tire marks on the floor.

##### **Improves Condition of Old Floors**

As concrete ages, surface stress, delaminating, curled cold joints, and other problems can arise. C<sup>2</sup> liquid hardeners/densifiers combined with our customized grinding and polishing technique can remove the top surface layer of the old concrete and strengthen the floor, increasing its impact and abrasion resistance.

##### **Little or No Production "Down Time"**

Cures quickly. Floor can be put into service immediately after the application process is complete. Due to the cleanliness of the process and the lack of toxic or hazardous chemicals, floors can often be serviced while the plant is in full production.

##### **Cost Effective**

C<sup>2</sup> Hard™ improves performance, appearance and light reflectance of new and old floors. It will reduce an energy bill. A treated floor will lower maintenance costs significantly through reduction in upkeep (no waxing), and reduced tire wear.

##### **LEEDS Certified**

Tested and conforms to California Collaborative for High Performance

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School Indoor Air Quality standards. Use can contribute to LEED® for schools points.

#### Planet Safe

C<sup>2</sup> Hard™ is water-based, contains no solvents, non-toxic, no smell, complies with all known national, state and district AIM VOC regulations, non-mutagenic & carcinogenic (safe in food preparation areas), non flammable, low odor, fast drying, easy to apply.

#### ADVANTAGES

- Compatible with all C<sup>2</sup> lithium hardeners, densifiers, sealers and cleaners.
- Helps Concrete Curing. For best results, use C<sup>2</sup> Hard™ first for hardening and densification followed with a water-based, dissipating curing membrane. C<sup>2</sup> Hard™ should not be substituted as a curing agent.
- Easy to Use. Reduces application time and costs of burnishing and diamond polishing operations. One step application. No white salty spots on concrete, No scrubbing and flushing required after application. No caustic wastewater.
- Ordinary cleaning can easily remove blemishes and tire marks.
- Lithium does not absorb water or contribute to floor sweating.
- An extremely hard marble-like shield and permanent impregnated surface can be achieved for the life of the concrete with one single application.
- May be applied to broom finished, steel troweled, power

troweled or burnished concrete finishes before final cure.

- Much safer and easier to apply than conventional sodium or potassium silicate hardeners.
- C<sup>2</sup> products are patented formulations.
- Produces a fast surface gloss, which improves with traffic and maintenance.
- Slip resistance is not diminished with high gloss and hardness.

#### COMPLIANCE

Complies with all known national, state and district AIM VOC regulations:

C<sup>2</sup> Hard™ is recommended for use on concrete classes both new and existing.

Safe for use in food and drug processing industries.

X	California Air Resources Board SCM Districts
X	South Coast Air Quality Management District
X	Maricopa County, Arizona
X	Northeast Ozone Transport Commission
X	US Environmental Protection Agency

#### Technical Data

FORM	Clear, water-like liquid
SPECIFIC GRAVITY	1.05
ACTIVE CONTENT	6.0%
TOTAL SOLIDS	6.0%
pH	11.0
WT/GAL	8.6 lbs
FLASH POINT	Non Flammable
FREEZE POINT	0°C (32°F)
VOC CONTENT	<20g/L
SHELF LIFE	2 years in unopened, factory sealed container

#### Limitations

All information provided is accurate to the best of our knowledge and is to be used strictly as a guide. Handling conditions, installation and use are not in our control therefore we cannot guarantee the results.

- C<sup>2</sup> Hard™ does not meet the ASTM-309 Standard. To meet this standard and create a membrane, use a dissipating, water-based curing agent.
- Will not repair damaged surfaces and cracks.
- Not recommended for use on plastic concrete, mortar, resin-based terrazzo mixes and painted or asphaltic and non-cementitious surfaces.

For additional testing information contact Crete Colors International at: [support@cretecolors.com](mailto:support@cretecolors.com)

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#### SURFACE PREPARATION

**Please read:** SAFETY INFORMATION on the label and SURFACE PREPARATION before use and application.

#### SOLUTIONS

Remove all curing compounds and other surface contaminants using the appropriate C<sup>2</sup> surface preparation cleaner, as listed below:

**C<sup>2</sup> Wash™** – Concrete laitance and construction soiling from freshly placed and cured concrete

**C<sup>2</sup> Maintenance™** – General soiling and fine dust from ground/polished concrete

**C<sup>2</sup> Remove™** – Curing compounds, mastics, tire marks, wax remover

**C<sup>2</sup> Stain Clean™** – Oil and grease stain remover

**C<sup>2</sup> Clean™** – For cleaning and degreasing light-to-heavy soiled concrete.

**C<sup>2</sup> Safe Prep™** – Non-fuming cleaner and surface-prep for concrete

#### Surface

Application of C<sup>2</sup> Hard™ may begin as soon as prepared surfaces are dry and free of ponded water. Do not apply to surfaces, which are frozen, dirty or have standing water.

Acid-stained concrete must be thoroughly neutralized and rinsed prior to application of C<sup>2</sup> Hard™.

Protect people, vehicles, property, plants and all nearby surfaces not to be treated from contact with the product including contact resulting from wind drift or overspray. Use polyethylene or other proven protective material to mask off all surrounding areas.

Surfaces must be clean, dry and absorbent. Confirm surface absorbency with a light water spray. Surfaces designated for treatment should wet uniformly. If the surface does not wet uniformly, use the appropriate surface preparation cleaner or mechanical process to remove remaining surface contaminants.

Always prepare a test sample to ensure that the desired results are achieved on the specific substrate.

#### Equipment

Use a low-pressure sprayer and soft-bristled push broom, squeegee or microfiber pad.

#### Air and Surface Temperature

Air and surface temperature should be 4°C to 38°C (40° F to 100° F).

**Specifier Note:** The information provided below is intended to guide the Architect in developing specifications for products manufactured under contract for Crete Colors International, LLC and should not be viewed as a complete source of information about the product(s). The Architect should also refer to the MSDS document for additional recommendations and for safety information.

**Specifier Note:** Paragraph below is for PART 1 GENERAL, Quality Assurance.

#### Test Area

- Test a minimum 1.5m x 1.5m (5ft. x 5ft.) area on each type of masonry.
- Use Crete Colors International, LLC application instructions.
- Let the test panel dry 3 to 7 days before inspection.
- Keep test panels available for comparison throughout the project.

**Specifier Note:** Paragraphs below are for PART 2 PRODUCTS, Manufacturers and Products.

#### Manufactured under contract for:

Crete Colors International, LLC,  
112 South Kyrene Rd. Suite #2  
Chandler, AZ 85226, USA.  
Tel: +1-480-426-0424  
Fax: +1-480-499-5550  
E-mail: [support@cretecolors.com](mailto:support@cretecolors.com)

**Specifier Note:** Paragraphs below are for PART 3 EXECUTION, Installation.

#### STORAGE AND HANDLING

Maintain temperature of 4-38 °C (40-100 °F), protect from extreme temperatures and keep from freezing.

Do not double-stack pallets. Published shelf life assumes upright storage of factory-sealed container in a cool dry place.

Do not alter or mix with other chemicals. Thaw and Mix well

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before using and always seal container after dispensing. Dispose of unused product and container in accordance with local regulations. Do not reuse container or remove labels. Keep this and other chemicals out of the reach of children.

### **PACKAGING**

20L or 200L Containers

### **APPLICATION INSTRUCTIONS**

#### **ALWAYS TEST**

each surface for suitability and desired results before application. For best results follow "Application Instructions". Let surface dry thoroughly before inspection and final approval.

#### **Dilution**

Do not dilute, apply as packaged when applying to cured concrete or cured and ground/honed concrete. Apply mist-like coat when using on highly polished concrete.

### **COVERAGE RATES**

#### **Freshly Placed, Uncured, Steel Troweled Concrete**

- 12.5-20 m<sup>2</sup>/L
- 500-800 ft<sup>2</sup>/US gal

#### **Cured, Steel Troweled Concrete**

- 10-17.0 m<sup>2</sup>/L
- 400-700 ft<sup>2</sup>/US gal

#### **Cured, Ground/Honed Concrete**

- 10-15 m<sup>2</sup>/L
- 400-600 ft<sup>2</sup>/US gal

**PLEASE NOTE:** Coverage rates are offered for estimating purposes only. Variations in concrete quality, porosity, job site conditions, temperature and relative humidity will affect coverage rates and drying times.

#### **Typical Coverage Rates**

Calculate Target Coverage Rate by testing a small section of the prepared surface using instructions found below.

#### **Calculating Specific Target Coverage Rate**

- Prepare the test section in accordance with "Surface Preparation". Surfaces must be clean, dry and absorbent. Confirm surface absorbency with a light water spray – surfaces designated for treatment should wet uniformly.
- Add 3.5L of C<sup>2</sup> Hard™ to a clean, pump-up sprayer fitted with an adjustable spray tip. Lightly apply according to "Application Instructions" steps #1-7 for the appropriate floor type. Repeat as necessary to determine correct rate of application.
- Measure the test area to establish the Target Coverage Rate per liter.

On cured concrete, C<sup>2</sup> recommends using an automatic floor scrubber equipped with nylon-grit or cleaning pads to remove construction soiling and residues of any curing compounds. This method will further enhance the surface sheen produced by C<sup>2</sup> Hard™.

#### **Drying Time**

30 min. to 1 hour depending on weather conditions and concrete porosity

#### **Freshly Placed, Uncured Steel-Troweled Concrete**

1. Saw cut control joints after final surface preparation.
2. Clean concrete of saw debris or any dirt or residue.
3. Using a low-pressure sprayer fitted with an adjustable spray tip, apply a single coat of C<sup>2</sup> Hard™ at a rate that covers the surface but does not produce puddles. Treated surfaces should stay wet for 5-10 minutes following initial application. Uniformly spread the product in a thin layer using a microfiber pad. The microfiber pad should be pre-moistened with C<sup>2</sup> Hard™ prior to use. Treat porous areas that dry in less than 5-10 minutes with additional C<sup>2</sup> Hard™.
4. Using a squeegee, water rinse or automatic floor scrubber, collect and remove after 15 minutes all residues, which do not penetrate.
5. Failure to remove excess material may result in extended dry times and a dry powder



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residue resulting from liberal application of C<sup>2</sup> Hard™.

6. Let treated surfaces dry thoroughly, typically 30 min. to 1 hour. Remove any dried powder residue from the surface using a stiff broom, power sweeper or floor-scrubbing machine.
7. Immediately apply the specified curing compound or initiate the specified curing procedure.
8. Once dry, burnish to a high gloss finish using high-speed burnishing equipment fitted with C<sup>2</sup> Heat™ burnishing pads. Additional coats may be applied and burnished depending upon concrete porosity and desired finish.

**FOR ADDITIONAL SHINE AND PROTECTION, APPLY C<sup>2</sup> Seal™ ACCORDING TO LABEL INSTRUCTIONS. ALWAYS BURNISH C<sup>2</sup> Seal™ BETWEEN COATS USING C<sup>2</sup> Heat™ BURNISHING PADS.**

#### **Cured, Steel Troweled Concrete**

1. Remove all dirt, debris, or curing compounds. Allow clean surface to dry.
2. Confirm surface absorbency with a light water spray. Make sure that prepared surface is uniformly wet and in hot, dry weather, lightly pre-wet the concrete with fresh water. Allow any standing water to evaporate.
3. Follow steps 2 – 7 as described in “Freshly Placed, Uncured Steel-Troweled Concrete” for completion.

**FOR ADDITIONAL SHINE AND PROTECTION, APPLY C<sup>2</sup> Seal™ ACCORDING TO LABEL INSTRUCTIONS. ALWAYS BURNISH C<sup>2</sup> Seal™ BETWEEN COATS USING C<sup>2</sup> Heat™ BURNISHING PADS.**

#### **Cured and Ground/Honed Concrete**

1. Grind or sand and level the concrete surface with an orbital floor machine, floor sander or diamond grinding machine equipped with a 50 to 200 grit sanding screen, diamond discs or diamond abrasive pad depending upon desired exposure and size of the aggregate. Vacuum dry grinding equipment is preferred. Wash off or vacuum all sanding dust and debris and allow floor to dry.
2. Follow steps 2 – 7 as described in “Freshly Placed & Uncured Concrete” for completion.

**FOR ADDITIONAL SHINE AND PROTECTION, APPLY C<sup>2</sup> Seal™ ACCORDING TO LABEL INSTRUCTIONS. ALWAYS BURNISH C<sup>2</sup> Seal™ BETWEEN COATS USING C<sup>2</sup> Heat™ BURNISHING PADS.**

#### **Cured and Polished Concrete**

1. Follow steps listed above for Cured and Ground/Honed Concrete.
2. To achieve desired finish, use progressively finer diamond discs and continue grinding from 800 to 3000 grit.
3. Remove all dust and debris.
4. For immediate and enhanced shine, burnish or buff the dry concrete surface in both directions using a burnisher fitted with C<sup>2</sup> Heat™ burnishing pads or an orbital floor machine equipped with a black, red or white pad. This is a dry buffing operation.

**FOR ADDITIONAL SHINE AND PROTECTION, APPLY C<sup>2</sup> Seal™ ACCORDING TO LABEL INSTRUCTIONS. ALWAYS BURNISH C<sup>2</sup> Seal™ BETWEEN COATS USING C<sup>2</sup> Heat™ BURNISHING PADS.**

**PLEASE NOTE:** C<sup>2</sup> Hard™ is compatible with wet or dry grinding and polishing operations. The above procedures for polished and highly polished concrete may be customized by an experienced contractor to complement his grinding or polishing operation.

#### **CLEANUP**

Clean tools and equipment with fresh water. Immediately wash with water over sprayed glass, aluminum, or other surfaces.

#### **FINAL RESULTS**

The concrete surface is ready to use when dry. Smooth and hardened concrete surfaces should demonstrate reduced water absorption, a satin sheen, and slight color enhancement upon drying. Maximum water resistance and hardness will develop over 7 days. Surface sheen will increase with time and maintenance.

#### **MAINTENANCE**

Use C<sup>2</sup> Maintenance™, our high quality, lithium based solution for cleaning and maintaining the lithium treated surfaces. This proprietary product was developed to further enhance long-term performance of the finished concrete floor.

Do not use acidic cleaners to maintain treated floors. Though C<sup>2</sup> Hard™ will improve the stain resistance of concrete some acid concentrates and acidic foods may etch and leave a residual stain if left on the surface. Clean up all spills quickly to minimize any possible damage. All sealers, both penetrating and coatings will only slow down the staining process.

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Spills must be cleaned up in a timely manner.

Daily removal of surface dust and debris with a microfiber pad or dry dust mop will help maintain the desired appearance. Regular maintenance cleaning will improve surface shine. To refresh gloss surface, dry buff periodically with high-speed burnisher and C<sup>2</sup> Heat™ burnishing pads.

For improved resistance to water or oily stains, apply C<sup>2</sup> Stain Safe™ according to label instructions. Apply C<sup>2</sup> Stain Safe™ directly to the hardened concrete surface.

**PLEASE NOTE:** If additional protective treatments or surface coatings are desired, please consult Crete Colors International or its local representative for recommendations.

#### **RECOMMENDATIONS**

The C<sup>2</sup> recommendations for surface preparation and product application must be followed. Consult Crete Colors Int'l or its local representatives regarding applications in extreme weather conditions

All loose construction debris and foreign materials must be removed from the area to be treated using a dry broom. All curing compounds, coatings, and paint, wax, embedded soiling, rust, grease and oil must be removed to allow penetration.

Always establish grinding starting point for every project.

Confirm surface absorbency with a light water spray. If surfaces selected for treatment do not wet uniformly, additional surface preparation may be needed.

Thoroughly neutralize and rinse acid-stained concrete before applying C<sup>2</sup> Hard™.

Wastewater generated by wet grinding or polishing procedures should be collected and disposed of properly.

Maintain C<sup>2</sup> Hard™ hardened floors with Lithium based C<sup>2</sup> Maintenance™.

For subsequent coating applications, perform proper surface preparation and consult the coating manufacturer for more instructions.

The instructions for diamond grinding and polishing are guidelines and do not supersede those of the concrete polishing contractor.

#### **SAFETY INFORMATION**

Your safety is our priority. Crete Colors International, LLC is a member of INFOTRAC'S MSDS Partnership Program. In case of any chemical emergency related to our C<sup>2</sup> products; spill, leak, fire or accident, please contact INFOTRAC free of charge for immediate first aid information.

Online access 24/7 at:  
[www.infotrac.net](http://www.infotrac.net)

Phone access 24/7 at:  
**+1- 352-323-3500**

#### **FIRST AID**

##### **Ingestion:**

Drink large quantities of water or milk. DO NOT induce vomiting. Seek medical attention immediately.

##### **Eye Contact:**

Remove contact lenses. Immediately flush eyes for 15 minutes in clear running water while holding eyelids open. Seek medical attention immediately.

##### **Skin Contact:**

Wash contacted area with soap and water. DO NOT attempt to neutralize with chemical agents. If irritation persists, seek medical attention.

##### **Inhalation:**

Remove affected person to fresh air. Wash mouth and nasal passages with water repeatedly. If breathing difficulties persist, seek medical attention.

#### **WARRANTY**

The information and recommendations made are based on our own research and the research of others, and are believed to be accurate. However, no guarantee of their accuracy is made because we cannot cover every possible application of our products, and anticipate every variation encountered in masonry surfaces, job conditions and methods used. The purchasers shall make their own tests to determine the suitability of such products for a particular purpose.



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Crete Colors International warrants this product to be free from defects. Where permitted by law, Crete Colors International makes no other warranties with respect to this product, express or implied, including without limitation the implied warranties of merchantability or fitness for particular purpose.

Crete Colors liability shall be limited in all events to supplying sufficient product to re-treat the specific areas to which defective product have been applied. Acceptance and use of this product absolves Crete Colors from any other liability, from whatever source, including liability for incidental, consequential or resultant damages whether due to breach of warranty, negligence or strict liability. This warranty may not be modified or extended by representatives of Crete Colors International, its distributors or dealers.

#### **CUSTOMER SERVICE:**

For technical assistance and product information visit our web site at [www.cretecolors.com](http://www.cretecolors.com) or email at [support@cretecolors.com](mailto:support@cretecolors.com)

