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## Product Guide Specification

Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) 3-Part Format, including *MasterFormat*, *SectionFormat*, and *PageFormat*, as described in *The Project Resource Manual—CSI Manual of Practice, Fifth Edition*.

This section must be carefully reviewed and edited by the Architect or Engineer to meet the requirements of the project and local building code. Coordinate this section with other specification sections and the Drawings. Delete all “Specifier Notes” after editing this section.

Section numbers are from *MasterFormat 2010 Update*.

## SECTION 03 35 00

### CONCRETE FLOOR SEALERS/DENSIFIERS/HARDENERS

Specifier Notes: This section covers the following Nox-Crete Inc. liquid concrete floor hardeners which penetrate concrete floor surfaces to seal, densify, harden, and dustproof:

“Duro-Nox”: Chemically reactive silicate blend. For application to freshly placed, new, and existing concrete floors.

“Duro-Nox LS”: Chemically reactive lithium silicate. For application to new and existing concrete floors.

“Duro-Nox LSC”: Chemically reactive lithium silicate. For application to freshly placed, new, existing, and polished concrete floors.

Consult Nox-Crete Inc. for assistance in editing this section for the specific application.

## PART 1 GENERAL

### 1.1 SECTION INCLUDES

- A. Liquid concrete floor hardeners.

### 1.2 RELATED REQUIREMENTS

Specifier Notes: Edit the following list of related sections as required. Limit the list to sections with specific information that the reader might expect to find in this section, but is specified elsewhere.

- A. Section 03 30 00 – Cast-in-Place Concrete.
- B. Section 09 61 00 – Flooring Treatment: Concrete floor polish.

### **1.3 REFERENCE STANDARDS**

Specifier Notes: List standards referenced in this section, complete with designations and titles. Delete standards not included in the edited section. Including a standard here does not require compliance with that standard.

- A. ASTM C 805/C 805M – Standard Test Method for Rebound Number of Hardened Concrete.
- B. ASTM D 2047 – Standard Test Method for Static Coefficient of Friction of Polish-Coated Flooring Surfaces as Measured by the James Machine.
- C. ASTM D 4060 – Standard Test Method for Abrasion Resistance of Organic Coatings by the Taber Abraser.

### **1.4 SUBMITTALS**

Specifier Notes: Edit submittal requirements as required. Delete submittals not required.

- A. Comply with Section 01 33 00 – Submittal Procedures.
- B. Product Data: Submit manufacturer's product data, including surface preparation and application instructions.
- C. Manufacturer's Certification: Submit manufacturer's certification that materials comply with specified requirements and are suitable for intended application.
- D. Manufacturer's Project References: Submit manufacturer's list of successfully completed liquid concrete floor hardener projects, including project name and location, name of architect, and type and quantity of liquid concrete floor hardeners furnished.
- E. Warranty Documentation: Submit manufacturer's standard and extended warranties.

### **1.5 QUALITY ASSURANCE**

- A. Manufacturer's Qualifications: Manufacturer regularly engaged, for past 5 years, in manufacture of liquid concrete floor hardeners of similar type to that specified.
- B. Applicator's Qualifications:
  - 1. Applicator regularly engaged, for past 5 years, in application of liquid concrete floor hardeners of similar type to that specified.
  - 2. Employ persons trained for application of liquid concrete floor hardeners.

3. Approved by manufacturer.

|                                                                                                        |
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| Specifier Notes: Edit site test application as required. Delete site test application if not required. |
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- C. Site Test Application: Construct site test application of liquid concrete floor hardeners for evaluation of surface preparation techniques and application workmanship.
  1. Construct site test application using same materials for use in the Work.
  2. Construct site test application at locations determined by Architect.
  3. Do not proceed until workmanship of site test application is approved by Architect.
  4. Approved Site Test Application: Standard for workmanship of liquid concrete floor hardeners.

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| Specifier Notes: Edit preinstallation meeting as required. Delete meeting if not required. |
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- D. Preinstallation Meeting:
  1. Convene preinstallation meeting 2 weeks before start of application of liquid concrete floor hardeners.
  2. Require attendance of parties directly affecting work of this section, including Contractor, Architect, applicator, and manufacturer's representative.
  3. Review surface preparation, mixing, application, protection, and coordination with other work.

## **1.6 DELIVERY, STORAGE, AND HANDLING**

- A. Delivery and Acceptance Requirements: Deliver materials to site in manufacturer's original, unopened containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Storage and Handling Requirements:
  1. Store and handle materials in accordance with manufacturer's instructions.
  2. Keep materials in manufacturer's original, unopened containers and packaging until application.
  3. Store liquid concrete floor hardeners between 40 and 100 degrees F (4 and 38 degrees C).
  4. Store materials in clean, dry area indoors, out of direct sunlight.
  5. Protect materials from freezing.
  6. Protect materials during storage, handling, and application to prevent contamination or damage.

## **1.7 AMBIENT CONDITIONS**

- A. Substrate and Ambient Temperatures: Apply liquid concrete floor hardeners at substrate and ambient temperatures between 40 and 100 degrees F (4 and 38 degrees C).
- B. Do not apply liquid concrete floor hardeners in direct sunlight.

## **1.8 WARRANTY**

Specifier Notes: Specify warranty type. Consult Nox-Crete Inc. for information regarding extended warranty.

- A. Manufacturer's Warranty: [Standard] [20-year extended].

## **PART 2 PRODUCTS**

### **2.1 MANUFACTURER**

- A. Nox-Crete Inc., 1444 South 20th Street, PO Box 8102, Omaha, Nebraska 68108. Toll Free 800-669-2738. Phone 402-341-1976. Fax 800-329-6733. [www.nox-crete.com](http://www.nox-crete.com). [customerservice@nox-crete.com](mailto:customerservice@nox-crete.com).

### **2.2 MATERIALS**

Specifier Notes: Specify Nox-Crete Inc. "Duro-Nox", "Duro-Nox LS" or "Duro-Nox LSC". Delete material not required. Consult Nox-Crete Inc. for assistance in determining appropriate liquid concrete floor hardener for the specific application.

- A. Liquid Concrete Floor Hardeners: **"Duro-Nox"**.
1. Description: Water-based, chemically reactive, silicate-blend, concrete floor sealer, hardener, and densifier. For application to freshly placed, new, and existing concrete floors.
  2. Compliance: USDA compliant for incidental food contact.
  3. Color: Colorless.
  4. Odor: None.
  5. VOC: 0 g/L.
  6. Flash Point: None.
  7. Active Sodium Silicate Solids: 17 percent.
  8. Abrasion Resistance, ASTM D 4060, Average Improvement:
    - a. 200 Revolutions: 83 percent.
    - b. 300 Revolutions: 82 percent.
  9. Hardening, ASTM C 805, Improvement in Impact Resistance: 12 percent.
- B. Liquid Concrete Floor Hardeners: **"Duro-Nox LS"**.
1. Description: Water-based, chemically reactive, lithium-silicate, concrete floor sealer, hardener, and densifier. For application to new and existing concrete floors.
  2. Compliance: USDA compliant for incidental food contact.
  3. Color: Colorless.
  4. Odor: None.
  5. VOC: 0 g/L.
  6. Flash Point: None.
  7. Active Lithium Silicate Solids: 15 percent.
  8. Abrasion Resistance, ASTM D 4060, Average Improvement:
    - a. 200 Revolutions: 77 percent.
    - b. 300 Revolutions: 75 percent.
  9. Hardening, ASTM C 805, Improvement in Impact Resistance: 13.3 percent.

- C. Liquid Concrete Floor Hardeners: **“Duro-Nox LSC”**.
1. Description: Water-based, chemically reactive, lithium-silicate, concrete floor sealer, hardener, and densifier. For application to freshly placed, new, existing, and polished concrete floors.
  2. Compliance: USDA compliant for incidental food contact.
  3. Color: Colorless.
  4. Odor: None.
  5. VOC: 0 g/L.
  6. Flash Point: None.
  7. Active Lithium Silicate Solids: 8 percent.
  8. Abrasion Resistance, ASTM D 4060, Average Improvement:
    - a. 200 Revolutions: 73 percent.
    - b. 300 Revolutions: 69 percent.

## 2.3 ACCESSORIES

Specifier Notes: When specifying “Duro-Nox”, “Duro-Nox LS” or “Duro-Nox LSC” and additional gloss, slip resistance, or stain protection are required, apply one of the following two concrete floor polishes. Delete material not required. Consult Nox-Crete Inc. for assistance in determining appropriate concrete floor polish for the specific application.

- A. Concrete Floor Polish: **“Duro-Polish”**.
1. Description: Water-based, ultra-high gloss, synthetic-polymer, concrete floor polish.
  2. VOC: Less than 250 g/L.
  3. VOC, Low VOC Version: Less than 50 g/L.
  4. Static Coefficient of Friction, ASTM D 2047: Greater than 0.5.
- B. Concrete Floor Polish: **“Duro-Polish Plus”**.
1. Description: Water-based, ultra-high gloss, synthetic-polymer, concrete floor polish with stain-blocking additive.
  2. VOC: Less than 400 g/L.
  3. VOC, Low VOC Version: Less than 100 g/L.
  4. Static Coefficient of Friction, ASTM D 2047: Greater than 0.5.

## PART 3 EXECUTION

### 3.1 EXAMINATION

- A. Examine concrete surfaces to receive liquid concrete floor hardeners.
- B. Notify Architect of conditions that would adversely affect application.
- C. Do not begin surface preparation or application until unacceptable conditions are corrected.

### 3.2 PREPARATION

- A. Protection of In-Place Conditions: Protect adjacent surfaces, glass, aluminum, steel, and vegetation from contact with liquid concrete floor hardeners.
- B. Surface Preparation of Existing Concrete:
  - 1. Prepare surfaces in accordance with manufacturer's instructions.
  - 2. Clean concrete surfaces of dirt, dust, debris, oil, grease, bond-breaker compounds, curing compounds, sealers, laitance, paint, and other contaminants which could adversely affect liquid concrete floor hardener penetration.
- C. Acid-Stained Floors: Neutralize acid-stained floors in accordance with manufacturer's instructions before application of liquid concrete floor hardeners.
- D. Concrete Floor Surfaces Over 3 Years Old: Remove carbonation and expose unreacted lime in accordance with manufacturer's instructions.

### **3.3 MIXING**

- A. Mix materials in accordance with manufacturer's instructions.

### **3.4 APPLICATION**

- A. Apply liquid concrete floor hardeners in accordance with manufacturer's instructions at locations indicated on the Drawings.
- B. Uniformly apply liquid concrete floor hardeners at application rate in accordance with manufacturer's instructions.

Specifier Notes: Include the following sentence when specifying "Duro-Nox", "Duro-Nox LS" or "Duro-Nox LSC" and additional gloss, slip resistance, or stain protection are required by application of concrete floor polish.

- C. Concrete Floor Polish: Apply concrete floor polish in accordance with manufacturer's instructions.
- D. Do not apply liquid concrete floor hardeners on latex or epoxy-polymer-modified concrete.

### **3.5 PROTECTION**

- A. Protect applied liquid concrete floor hardeners from damage during construction.

**END OF SECTION**