SECTION 03 35 00

CONCRETE FINISHING

Display hidden notes to specifier. (Don't know how? [Click Here](https://www.arcat.com/sd/display_hidden_notes.shtml))

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\*\* NOTE TO SPECIFIER \*\* Solomon Colors; concrete finishing and polishing.  
This section is based on the products of Solomon Colors, which is located at:  
4050 Color Plant Rd.  
Springfield, IL 62702-1060  
Toll Free Tel: 800-624-0261  
Tel: 217-522-3112  
Fax: 800-624-3147  
Email: [request info (sgs@solomoncolors.com)](https://admin.arcat.com/users.pl?action=UserEmail&company=Solomon+Colors&coid=35596&rep=&fax=800-624-3147&message=RE:%20Spec%20Question%20(03350lyt):%20%20&mf=)  
Web: <http://www.brickform.com> | <https://www.day1finishingaid.com>   
 [ [Click Here](https://www.arcat.com/arcatcos/cos35/arc35596.html) ] for additional information.  
Lythic DAY1 Troweling Aid and Densifier is a colloidal silica-based topical treatment that makes it easier to finish concrete flatwork and paving, and produce higher quality work. Sprayed on fresh concrete, DAY1 creates more cement paste so concrete has a creamier consistency. Troweling requires less effort and workability is extended, so installers have more time to do jobs correctly without sprinkling excessive water on concrete surfaces. Lythic DAY1 produces concrete that, once cured, has a denser, harder surface and is more resistant to dusting, abrasion, stains, chloride intrusion. It also reduces vapor transmission through concrete to provide a better substrate for application of finishes.

1. GENERAL
   1. SECTION INCLUDES
      1. Colloidal silica treatment applied to cast-in-place concrete to facilitate finishing for the following locations.

\*\* NOTE TO SPECIFIER \*\* Use the following if DAY1 is required throughout a project. Add concrete types if labeled on the Drawings. Delete options not required.

* + - 1. Apply to the top surfaces of the following:
         1. Interior concrete slabs.
         2. Exterior concrete slabs.
         3. Interior concrete flatwork.
         4. Exterior concrete flatwork.
         5. Interior concrete troweled surfaces.
         6. Exterior concrete troweled surfaces.

\*\* NOTE TO SPECIFIER \*\* Use the following to identify specific areas. DAY1 is not recommended for formed surfaces. Add concrete types if labeled on the Drawings. Delete options not required.

* + - 1. Apply to the top surfaces of the following:
         1. Interior slabs-on-grade.
         2. Elevated floor decks.
         3. Elevated roof decks.
         4. Stair treads and landings.
         5. Concrete countertops.

\*\* NOTE TO SPECIFIER \*\* The following applies to parapets, retaining walls, balconies, concrete fences, ledges, light pole bases or similar. Edit the following or designate locations in the Drawings. Add concrete types if labeled on the Drawings. Delete options not required.

* + - * 1. Tops of \_\_\_ walls that will remain exposed to view or weather.
        2. Concrete paving.
        3. Concrete curbs.
        4. Concrete gutters.
        5. Concrete sidewalks.
        6. Concrete driveways.
        7. Tilt-up concrete panels.
        8. Pneumatically placed concrete with troweled finish, including vertical and sloped surfaces.
        9. Concrete surfaces to receive resilient floor finishes.
        10. Concrete surfaces exposed to view.
        11. Concrete surfaces exposed to traffic.
        12. Rooms \_\_\_\_, \_\_\_\_\_, \_\_\_\_\_.
        13. Parking structures.
        14. Culverts, tanks, and drainage structures.
        15. Bridge decks.
      1. Apply to locations as shown on the Drawings.

\*\* NOTE TO SPECIFIER \*\* DAY1 produces a harder surface that may make it more difficult to expose aggregate. Do not apply to surfaces that are to be stained or dyed without testing to determine compatibility. Add concrete types if labeled on the Drawings. Delete options not required.

* + - 1. Exceptions: Do NOT treat:
         1. Concrete where aggregates are to be exposed.
         2. Exposed aggregate concrete to requiring surface retarders.
         3. \_\_\_\_\_\_\_\_\_\_\_.
  1. RELATED SECTIONS

\*\* NOTE TO SPECIFIER \*\* Delete any sections below not relevant to this project; add others as required.

* + - 1. Section 32 13 16.23 - Stamped Concrete Paving.
      2. Section 03 06 00 - Schedules for Concrete.
      3. Section 03 30 00 - Cast-in-Place Concrete.
      4. Section 12 36 13 - Concrete Countertops.
      5. Section 03 35 00 - Concrete Finishing.
      6. Section 03 35 13 - High-Tolerance Concrete Floor Finishing.

\*\* NOTE TO SPECIFIER \*\* DAY1 can improve adhesion of floor finishes by reducing vapor transmission through concrete. Include the following to coordinate mock-ups or other requirements for floor finishes

* + - 1. Section 09 60 00 - Flooring.
  1. REFERENCES

\*\* NOTE TO SPECIFIER \*\* Delete references from the list below that are not actually required by the text of the edited section. Day1 is intended for use with Portland cement concrete and is compatible with typical types of admixtures, supplementary cementitious materials, and aggregates. Contact manufacturer prior to use with other types of cements or unusual admixtures.

* + - 1. American Concrete Institute (ACI):
         1. ACI 301 - Structural Concrete.
         2. ACI 303.1 - Cast-in-Place Architectural Concrete.
         3. ACI 305.1 - Hot Weather Concreting.
         4. ACI 306.1 - Cold Weather Concreting.
         5. ACI 308.1 - Curing Concrete.
         6. ACI 318 - Building Code Requirements for Structural Concrete.
      2. ASTM International (ASTM):
         1. ASTM C192 - Making and Curing Concrete Test Specimens in the Laboratory.
         2. ASTM C779 - Abrasion Resistance of Horizontal Concrete Surfaces.
         3. ASTM C805 - Rebound Number of Hardened Concrete.
         4. ASTM D4263 - Indicating Moisture in Concrete by the Plastic Sheet Method.
         5. ASTM F1869 - Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
      3. British Standard European Norm (BS EN):
         1. BS EN 480-5:2005 - Admixtures for concrete, mortar and grout. Test methods Determination of capillary absorption.
  1. SUBMITTALS
     + 1. Submit under provisions of Section 01 30 00 - Administrative Requirements.
       2. Product Data: Submit manufacturer's product data and installation instructions.
          1. Storage and handling requirements and recommendations.
          2. Preparation and installation instructions and recommendations.
          3. Cleaning and maintenance methods.
     1. Informational Submittals:

\*\* NOTE TO SPECIFIER \*\*Retain following for LEED projects only.

* + - * 1. Submit evidence of compliance with VOC limits.
    1. Test Reports: Submit reports substantiating compliance with specified performance.
    2. Submit installer qualifications.
  1. QUALITY ASSURANCE

\*\* NOTE TO SPECIFIER \*\*While DAY1 can improve concrete and "save" concrete that might otherwise suffer from improper finishing, do not expect DAY1 to overcome errors in design and workmanship. Use DAY1 only on concrete that meets industry standards. Retain ACI 301 if work is primarily structural, or ACI 303.1 if work is primarily governed by appearance. Edit reference standards below based on the project and scope.

* + - 1. Product shall be installed by licensed contractors and installers experienced and trained in the use of concrete densifiers.
      2. Perform work in accordance with: ACI 301, ACI 303.1, ACI 305.1, ACI 306.1, ACI 308.1, ACI 318.
      3. Mock-Up: Treat where necessary to comply with requirements in related sections.
  1. DELIVERY, STORAGE, AND HANDLING
     + 1. Comply with manufacturer's instructions.
       2. Deliver in original, unopened packaging.
       3. Store in dry area and raised off floor.
       4. Maintain temperature between 40 to 95 degrees F (4 to 38 C) and protect from freezing.
  2. PROJECT CONDITIONS
     1. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's recommended limits.

\*\* NOTE TO SPECIFIER \*\* Delete warranty if not required.

* 1. WARRANTY
     + 1. Warranty: Manufacturer's standard warranty product is of uniform quality within manufacturing tolerances.
          1. Manufacturer does not warranty installation or suitability for project conditions.

1. PRODUCTS
   1. MANUFACTURERS
      1. Acceptable Manufacturer: Solomon Colors, which is located at: 4050 Color Plant Rd.; Springfield, IL 62702-1060; Toll Free Tel: 800-624-0261; Tel: 217-522-3112; Fax: 800-624-3147; Email: [request info (sgs@solomoncolors.com)](https://admin.arcat.com/users.pl?action=UserEmail&company=Solomon+Colors&coid=35596&rep=&fax=800-624-3147&message=RE:%20Spec%20Question%20(03350lyt):%20%20&mf=); Web: <http://www.brickform.com> | <https://www.day1finishingaid.com>

\*\* NOTE TO SPECIFIER \*\* Delete one of the following two paragraphs; coordinate with requirements of Division 1 section on product options and substitutions.

* + 1. Substitutions: Not permitted.
    2. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00 - Product Requirements.
  1. COLLOIDAL SILICA TREATMENT
     + 1. Basis of Design: Lythic DAY1 by Lythic Solutions, Inc., a Division of Solomon Colors Inc.
       2. Description:
          1. Ingredients: Concentrated colloid of nano-sized amorphous silica-based compounds and other ingredients.
          2. Regulatory Volatile Organic Compound Emissions: 35 g/l maximum.

\*\* NOTE TO SPECIFIER \*\* Test reports for results shown below are available upon request. Laboratory and field testing is representative of product's performance. Actual results will vary depending upon concrete mixture, handling, and ambient conditions. Contact Lythic for assistance in evaluating performance on concrete proposed for use on your project.

* + - 1. System Performance: Meet or exceed the following additional specifications:
         1. Workability Time:

Testing Protocol: Side-by-side trials by volunteer professional concrete finishers in public demonstrations.

Result: Workability of colloidal silica-treated slabs increased average of 70 percent compared to slabs with no finishing aid and 38 percent compared to slabs with added water.

* + - * 1. Surface Compressive Strength:

Testing Protocol: ASTM C805 using slabs produced during Workability Time trials.

Result:Average increase in compressive strength of colloidal silica-treated slabs:

Compared to slabs finished without additional treatment: 49 percent after one day, 25 percent after two days curing, 64 percent after three days curing.

Compared to slabs finished with additional water: 49 percent after one day curing, 55 percent after 2 days curing, 52 percent after 3 days curing.

* + - * 1. Abrasion Resistance:

Testing Protocol: Specimens shall comply with ASTM C192, cured 56 days, and tested in accordance with ASTM C779, Procedure C.

Result: Treated specimens have 65 percent less wear than untreated specimens after first minute of testing, and took approximately four times as much abrasion to wear through top 0.5 mm of concrete surface.

* + - * 1. Vapor Transmission:

Testing Protocol: ASTM F1869.

Result: Treated specimens have 18 percent reduction at 28 days and 69 percent reduction at 56 days.

* + - * 1. Moisture in Concrete:

Testing Protocol: ASTM D4263.

Result: Treated specimens have significant moisture reduction at 28 and 56 days.

* + - * 1. Moisture Transmission:

Testing Protocol: BS EN 480-5:2005.

Result: Treated specimens have 35 percent less water absorption at 28 days.

* + - * 1. Permeability:

Protocol: Cast concrete on warmed surface, under heat lamp, and expose to wind to simulate afternoon pour in Southwestern US. Measure electrical resistance of specimens as indication of moisture in concrete.

Result: Treated specimens have 15 percent increase in resistivity, indicating drier and less porous concrete

* 1. MIXING
     + 1. Dilute with clean, potable water and mix; comply with manufacturer's instructions.

1. EXECUTION
   1. PREPARATION
      * 1. Protect adjacent areas against overspray and drift.
        2. Where performance is required to be demonstrated, test a sample slab of similar mix design 28 days or more prior to actual pouring.
   2. APPLICATION
      * 1. Apply with low-pressure sprayers in accordance with manufacturer's instructions.
        2. Test a small area of each concrete batch to be finished at the beginning of floating and again at the beginning of troweling to verify application rate and finishing techniques.

\*\* NOTE TO SPECIFIER \*\* Limitations: Lythic DAY1 is not a concrete sealer and will not seal concrete or prevent staining.

* + - 1. Product may be used during the placement and finishing of concrete, and to assist concrete floating or troweling at any point during the finishing process.
         1. To ensure consistent results, application for the entire project or entire contiguous areas is recommended.
         2. Product can be applied both before and after the application of dry-shake hardeners and color hardeners, especially useful when there is a limited amount of bleedwater to wet-out the powdered hardeners.
      2. Product must be floated or troweled into concrete, do not allow to puddle or pond on surfaces.
      3. Multiple applications can be made as needed provided the combined total of all applications is no greater than 1 gallon per 400 square feet (3.78 liters per 37 square meters) per application.
         1. Do note exceed manufacturer's recommendations. Over application will lead to residual colloidal silica migrating to the surface or cause surface softening.
      4. Typical Applications: Spray apply in two passes:
         1. First Pass: Apply as soon as practical after screeding and leveling concrete.
         2. Second Pass: Apply immediately prior to final troweling or other finishing operations.
         3. If immediate application is not possible, apply within three hours of initial concrete placement.
      5. Application Rate: 1000 square feet per gallon (92.9 square meters per 3.78 liters) in each pass.
         1. Additional applications to areas that are difficult to close and smooth, or for edge finishing, are permissible, provided cumulative total of all colloidal silica applications on any one area does not exceed 350 square feet per gallon (32.5 square meters per 3.78 liters).
    1. Do not apply water to surface of concrete during placing or finishing.
    2. Cure concrete as specified in related work.
  1. CLEANING
     + 1. Remove protection applied to adjacent areas.

END OF SECTION