

Guide Specification

Water Repellents

Section 07180



ADVANCED
CHEMICAL
TECHNOLOGIES, Inc.
“Protecting the World’s Infrastructure”

SIL-ACT[®] ATS-200 is a chemical treatment which causes concrete, masonry and many other porous building materials to become permanently repellent to water, salt and many other waterborne chemicals. The small molecular size of **SIL-ACT[®] ATS-200** enables silane to penetrate deeply into pore of substrates but does not change the appearance or vapor permeability of treated surfaces. It is manufactured by ADVANCED CHEMICAL TECHNOLOGIES, INC., the leader in high-performance silane water repellents since 1976.

SPECIFICATION COORDINATION: Use this guide specification for buildings, parking garages, vertical surfaces, and horizontal such as balconies and plazas. For bridges, roads, and other surfaces subject to extreme exposure of wear, contact ADVANCED CHEMICAL TECHNOLOGIES, INC. for appropriate specifications.

Edit guide specification in accordance with Project requirements. Delete, modify, or add text as required. Coordinate with other sections for general requirements and related work. Obtain current copies of manufacturer’s technical data sheet and other product literature before editing. This guide specification is also available on computer diskette.

FOR ADDITIONAL INFORMATION: Contact your local **SIL-ACT[®]** representative or **ADVANCED CHEMICAL TECHNOLOGIES, INC.** at 9608 North Robinson Ave., Oklahoma City, OK 73114 - Fax 405-843-2596 – Phone 405-843-2585 or 800-535-0433 e-mail advchem@advchemtech.com

PART 1. GENERAL

1.01. SUMMARY

A. Section includes water repellent treatments.

Edit Related Sections in accordance with project requirements.

- Concrete and stucco: Specification of moist curing methods are recommended. Film forming curing compounds must be removed prior to application of water repellents.
- Coatings and joint sealers: **SIL-ACT[®] ATS-200** is compatible with most solvent based coatings and sealants but can inhibit the adhesion of water based products.

1.02 RELATED SECTIONS

- A. Section (03300 – Cast-In-Place Concrete): (_____ - _____): Surface preparation and cleaning.
- B. Section (03400 – Precast Concrete): (_____ - _____): Surface preparation and cleaning.
- C. Section (04200 – Unit Masonry): (_____ - _____): Surface preparation and cleaning.
- D. Section (04400 – Stone): (_____ - _____): Surface preparation and cleaning.
- E. Section (07900 – Joint Sealers): (_____ - _____): Scheduling of installation.
- F. Section (09200 – Stucco): (_____ - _____): Surface preparation and cleaning.
- G. Section (09900 – Painting): (_____ - _____): Coatings applied over water repellent treated surfaces.

1.03 PERFORMANCE REQUIREMENTS

- A. Treated surfaces shall resist penetration by water and water-borne salts, ions, and other substances.
- B. Water repellent shall penetrate into and chemically bond with substrate to provide permanent protection.
- C. Water repellent shall not change surface (skid resistance), texture, appearance, or vapor permeability.

1.04 SUBMITTALS

- A. Comply with Section (01300), (01340).
- B. Product Data: Submit manufacturer’s product description and application instructions. Submit copies of test reports from independent laboratories.
- C. Applicator Qualifications: Submit applicator qualifications.
- D. Sample Warranty: Submit sample of manufacturer’s warranty and warranty registration procedures.

1.05 QUALITY ASSURANCE

- A. Manufacturer Qualifications: Manufacturer shall be able to document that their silane products have maintained water repellency for over ten years of continuous field exposure.
- B. Applicator Qualifications: Applicator shall be firm authorized by manufacturer.
- C. Field Testing: Comply with Section (01400), (01425)
 - 1. Conduct prior to general application of water repellent. Provide two day notice to (Architect/Engineer) (_____) and manufacturer to allow test to be observed.
 - 2. Apply water repellent to one square foot area on each type of surface to be treated and allow to react with substrate for five days. Prepare surface and apply water repellent in accordance with specification and employing procedures proposed for use on project.
 - 3. Water Absorption Tests: Perform on treated and untreated surfaces to determine relative effectiveness of treatment. Comply with manufacturer's test procedures.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Comply with Section (01600), (01610).
- B. Deliver to jobsite in unopened, sealed containers with manufacturer's label identifying product and with numbered seals intact.
- C. Store in sealed containers.

1.07 PROJECT CONDITIONS

- A. Ventilation: Provide adequate ventilation and fresh air during and after application to comply with applicable requirements. (In enclosed areas, wear appropriate respirators as required).
- B. Wear protective goggles, gloves, and clothing during application of water repellents.
- C. Properly clean and dispose of spills.
- D. Do not apply when wind is 15 M.P.H. or over; ambient or surface temperature is below 40F or over 100F; or when rain will occur within 60 minutes after application.
- E. Walls: Protect against entry of water through exposed back side or top of walls; do not apply water repellent before (coping), (flashings), (and) (roofing), are installed; water trapped in walls has drained; and building materials have dried.

1.08 WARRANTY

Limited warranty is available with **SIL-ACT**[®] products when water repellent is applied according to **ADVANCED CHEMICAL TECHNOLOGIES, INC.** instructions. Contact manufacturer for duration of warranty available to specific projects.

- A. Provide manufacturer's limited warranty, co-signed by contractor and applicator, under provisions of section (01700), (01740). Warrant that structurally sound treated surfaces shall retain water and salt repellent properties for (_____) years from date of application. Comply with manufacturer's warranty registration procedures including reaction evaluation registration (and corrosion detector system).

PART 2 PRODUCTS

2.01. MANUFACTURER

- A. **ADVANCED CHEMICAL TECHNOLOGIES, INC.**
9608 North Robinson Ave.
Oklahoma City, OK 73114
PHONE 405-843-2585 or 800-535-0433
FAX 405-843-2596

Water repellent substitutions require careful evaluation. Coordinate the following with Division One and bidding requirements.

- B. Substitutions: Under provisions of Section (01600), (01630).
 - 1. Submit proposed substitutions to (Architect/Engineer) (_____) in writing not less than 10 days before bid date. Acceptance will be by Addendum.
 - 2. Submit manufacturer qualifications, product data, samples, installation instruction, test reports, warranty, (and) (_____). Clearly indicate discrepancies between proposed products and specified product.

3. Submit letter from manufacturer certifying that proposed substitution is compatible with surfaces to be treated and other relation materials and will provide specified performance.
4. Submit letters signed by manufacturer and applicator indemnifying Owner from infringement of applicable patents.

2.02 MATERIALS

SIL-ACT® ATS-200 with > 100 percent silane provides the highest level of protection and should be used on horizontal decks and other structures with severe exposure. The small molecular size of **SIL-ACT® ATS-200** enables silane to penetrate deeply into pore of concrete, masonry and other substrates.

SOLUTION: Contact Advanced Chemical Technologies, Inc. for additional information on VOC compliant formulations.

STONE GRADE: The reaction between **SIL-ACT® ATS-200** and natural stone can vary depending on the chemical content of the stone.

FUGITIVE DYE: Optional dye can be specified as an aid in inspection. Dye IS NOT RECOMMENDED for buildings where potential discoloration is unacceptable.

- A. **SIL-ACT® ATS-200** Water Repellent with 100 percent minimum by weight active alkyltrialkoxo silane. Silane molecules shall not be greater than nine angstroms diameter.
 1. Solution: (Anhydrous isopropyl alcohol.) (Provide solution complying with applicable volatile organic compound emission regulations.)
 2. (Stone Grade: Provide special formulation as recommended by manufacturer for application to natural stone. Submit representative samples of stone to water repellent manufacturer for evaluation; coordinate with Section (04400.) (_____).)
 3. (Fugitive Dye: Provide colored dye which will fade after direct exposure to sunlight.)
- B. Do not dilute or alter water repellent. Do not allow water into solution. Use as supplied by manufacturer.

2.03 EQUIPMENT

- A. Spray Equipment: 15 psi low pressure positive displacement airless spray equipment fitted with fan spray nozzle. Adjust to provide a "wet spray" instead of a "mist spray". (Use spray bar with multiple nozzles for large horizontal areas.)
- B. Brushes and Rollers: Use in areas inaccessible to spray equipment.
- C. Equipment, tanks, and hoses shall be clean and free of water, oil residue, paints, and foreign matter. Flush with anhydrous isopropyl alcohol, anhydrous methanol, or water repellent

PART 3 EXECUTION

3.01 EXAMINATION

- A. Examine substrate and conditions under which water repellent is to be applied. Advice (Architect/Engineer) (_____) in writing of unsatisfactory conditions. Do not apply water repellent until conditions have been corrected.

3.02 PREPARATION

- A. Substrates:
 1. (Concrete), (Mortar), (and) (Stucco): Allow to cure to design strength or 28 days prior to application.
 2. Repair surface cracks exceeding four mils wide (except where indicated to be sealed after application of water repellent). Allow repair to cure prior to application.
 3. (_____).

| |
|--|
| Specify cleaning methods which are compatible with surfaces and satisfy environmental and job site requirements. |
|--|

- B. Cleaning:
 1. Visual Criteria: Surfaces shall be free of laitance, dirt, dust, coatings, cure materials, grease, oil, efflorescence and contaminants.

2. Absorption Criteria:
 - a. Surfaces shall be capable of absorbing water repellent. Remove oils, dirt, dust, (curing compounds), coatings, and contaminations which could clog pores and capillaries in surfaces
 - b. Spray dispersed water repellent on surfaces and observe rate at which dispersion penetrates surface. If dispersion does not begin to penetrate immediately, is not absorbed by the surface within a few seconds or if surface appears oily, surface shall be cleaned.
3. Cleaning Method:
 - a. (Clean surfaces as specified in other sections).
 - b. (Waterblasting), (Low pressure water and scrub brushes). Allow surfaces to dry.
 - c. (Shotblasting). (Sandblasting). (Power brooming). Sweep of air blast to remove dust.

Retain following when cleaning horizontal surfaces.

4. Use cleaning equipment with traps, filters, drip pans, and other devices to prevent oil or other foreign materials from being deposited on clean surface.
- C. Washing:
Prior to application of water repellent, clean glass, metal, () and similar exposed surfaces which are not to be treated with water repellent. Notify (Architect/Engineer) () in writing of surfaces which are damaged or can not be cleaned.

SIL-ACT[®] will not normally stain or etch window glass or framing. However, run-off from cementitious surfaces may leave mineral deposits or etch glass. To avoid jobsite conflicts over the source of damage, include glass cleaning specification above.

CAUTION: VOC Compliant solutions and additives in Stone Grade. **SIL-ACT[®]** can leave visible deposits on glass and metal. Edit specifications below for masking requirements. Omit cleaning of glass and metal above if making is specified.

- D. Masking:
(Mask glass, metal, () and similar surfaces).
- E. Protection:
1. Protect (plants), () and other surfaces which are subject to damage from over spray.
 2. Close air-intake louvers, windows and other openings.
- F. Drying:
Substrates shall be substantially dry and free of frost and ice at time of application.

3.03 APPLICATION

TYPICAL COVERAGE RANGES: SIL-ACT[®] PRODUCTS coverage varies depending on porosity, density, moisture content, temperature, and other surface conditions. Contact Advanced Chemical Technologies, Inc. for assistance evaluating Project requirements.

| SURFACE | Sq. ft/gal | Sq. m/L |
|---|-------------------|----------------|
| Concrete Brick or Block | 75-125 | 1.84-3.07 |
| Exposed Aggregate Concrete, Clay Brick, Stucco, Rough Stone, or Porous Concrete | 100-175 | 2.46-4.30 |
| Concrete Bridge Decks & Surfaces Subject to Abrasion | 100-225 | 2.46-5.61 |
| Smooth Precast Concrete | 125-225 | 3.07-5.61 |
| Steel Trowel Finished Concrete or Smooth Stone | 150-225 | 3.68-5.61 |

- A. Spray in a single uniform pass. Saturate treated surfaces.
- B. Coverage Rate:
1. Horizontal Surfaces: Apply proper quantity so that dispersion stands on surface a few minutes before completely penetrating. Do not exceed () sq. ft/gal after dispersion in water.
 2. Vertical Surfaces: Treat surfaces from bottom up. Apply proper quantity so that dispersion runs down six to eight inches below spray pattern. Do not exceed () sq. ft/gal after dispersion in water.
- C. Work Stoppage:

If entire application cannot be completed at one time, clearly mark place where application stopped. Seal and protect partially used containers against water and other contamination.

3.04 CLEANING AND PROTECTION

- A. Cleaning: Promptly remove water repellent over spray from glass, metal, (_____) and similar exposed surfaces with soap and water or alcohol; rinse with clean water. (Remove masking.)
- B. Horizontal Surfaces: Protect against traffic for 45 minutes.

3.05 SCHEDULE

- A. Apply Water repellent to surfaces shown on Drawings.

Omit above or below. Edit as required and coordinate with Drawings.

- B. Apply water repellent to exterior (cast-in-place concrete,) (precast concrete,) (brick masonry,) (concrete masonry units,) (mortar,) (stone,) (stucco,) (and) (_____) surfaces of (buildings,) (structures,) (pavements,) (and) (_____).

END OF SECTION



