



REMR MATERIAL DATA SHEET CM-SE-1.24
CONCRETE SEALER: SIL-ACT ATS 42
 (Supersedes previously issued CM-SE-1.24)

1. NAME

Sil-Act ATS 42

Because of its deep penetration, up to 1/2 in., Sil-Act ATS 42 is ideally suited to protect concrete surfaces subject to abrasion, such as bridge decks, parking structures, ramps, and pavements.

2. MANUFACTURER

Advanced Chemical Technologies Co.
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Sil-Act ATS 42 treatment minimizes damage to concrete resulting from cycles of freezing and thawing, deicer scaling, spalling, and delamination caused by chloride intrusion and other waterborne chemicals.

3. DESCRIPTION

Sil-Act ATS 42 is a clear, single-component, ready-to-use solution of a particular alkyltrialkoxo silane in alcohol. Sil-Act ATS 42 penetrates deeply into concrete and protects imbedded steel reinforcement from salt intrusion. Unlike coatings, oils, and other commonly used sealants, Sil-Act ATS 42 treatment does not block the porosity of concrete. Instead, it reacts chemically with the concrete to form a hydrophobic, salt-resistant layer, up to 1/2 in. thick, which is repellent to liquid water but permeable to water vapor. Sil-Act ATS 42 treatment does not strain, discolor, affect skid resistance, or change the surface characteristics of concrete in any way.

Advantages: Sil-Act ATS 42 has the following advantages:

- Protects imbedded steel reinforcement from corrosion.
- One-time application requiring no periodic retreatments or maintenance applications.
- Easily applied without special equipment.
- Single component, ready-to-use, no premixing required.
- Deep penetration (normally 1/4 to 1/2 in.).
- Reacts chemically with concrete to form a hydrophobic, salt-resistant layer. (Sil-Act ATS 42 is a coating.)
- Does not affect porosity or vapor permeability.
- Minimizes freeze-thaw damage, spalling, and delamination caused by chloride-ion permeation.

4. USES, ADVANTAGES, & LIMITATIONS

Uses: Sil-Act ATS 42 treatment prevents salt and water intrusion into cured concrete and protects imbedded steel reinforcement from corrosion.

Sil-Act ATS 42 treatment will protect both old and new concrete structures.

- Will not discolor, affect skid resistance, or alter surface characteristics of concrete in any way.
- Deters efflorescence.

Limitations: Sil-Act ATS 42 has the following limitations:

- Surfaces must be clean and substantially dry prior to application.
- Concrete must be cured prior to application.
- Must not be diluted or otherwise altered.
- Should not be applied at temperatures lower than 40° F or higher than 100° F.
- Must not be applied when blowing winds or other conditions prevent proper application.
- Cannot be made nonpoisonous.

Test results:

| Test | Test Procedure | Test Material | Test Results | Chloride |
|---|----------------|---------------|-------------------|--|
| Moisture absorption (48 hr) | ASTM C 642 | Concrete | 0.00% | |
| Moisture absorption (50 days)* | ASTM C 642 | Concrete | 0.74% | |
| 90-day chloride ponding* | AASHTO T-259 | Concrete | 1/16-1/2 1/2-1 | 0.08 lb/yd ³ concrete 0.00 lb/yd ³ concrete |
| 90-day chloride ponding (Sandblasted after treatment)** | AASHTO T-259 | Concrete | 1/16-1/2 1/2-1 | 1.48 lb/yd ³ concrete 0.35 lb/yd ³ concrete |
| Penetration test† | OHD L-34 | Concrete | 0.40 in. | |
| Vapor permeability† | OHD L-35 | Concrete | 100.1% | |

* Test conducted by Techrad, a Division of the Benham Group.
 ** Test conducted by Construction Technology Laboratory, a Division of the Portland Cement Association.
 † Test conducted by the Oklahoma Department of Transportation.

5. MANUFACTURER'S TECHNICAL DATA

The solution is clear and colorless and has the consistency of rubbing alcohol. Product remains fluid at subfreezing temperatures and is stable when stored properly at ambient temperatures for a minimum of 1 year.

Physical properties:

- Appearance: Clear, colorless, with alcoholic odor
- Solids content: 40% minimum
- Specific gravity: 0.83
- Boiling point: 180° F
- Flash point: 54° F Closed, Cup
- Solubility in water: 100%

Warranty: Specific warranty details are available from the manufacturer upon request.

Maintenance: Drums should be stored at ambient temperature and should be tightly sealed to prevent contamination.

6. MANUFACTURER'S GUIDANCE FOR APPLICATION

Surface preparation: The dryness of the surface to be treated is critical. Steel shotblasting and sandblasting are the best cleaning methods. If cleaned with water or steam, the surface must be allowed to dry fully (up to several days) prior to Sil-Act ATS 42 application for maximum performance.

Surfaces to be treated must be completely free of oil, dirt, dust, curing compound, or other types of coatings. The treatment gives maximum performance only when it is able to penetrate into the concrete pores and capillaries.

Application: Surfaces to be treated should be adequately ventilated, and all sources of open flame should be extinguished.

Sil-Act ATS 42 can be easily applied, using low-pressure (15 to 30 psi) positive displacement airless horticultural spray equipment fitted with fan spray nozzle and adjusted to a wet-spray condition. Mist-spraying can allow excessive material to be lost to the atmosphere.

Deck surfaces subject to abrasion should be treated at a minimum rate of 125 sq ft/gal. Vertical surfaces, parapets, pier caps, and other reinforced-concrete structures not subject to traffic wear can be treated at the rate of 150 to 175 sq ft/gal.

Deck areas are more rapidly and evenly treated with a spray-bar unit pulled by a pickup or other vehicle. Hand-held sprayers may be employed for

treating vertical surfaces of structures.

Surfaces subject to degradation by an alcoholic solvent should be protected.

Traffic should be allowed on treated areas only after Sil-Act ATS 42 has fully penetrated and disappeared.

If necessary, lightly water-wet treated areas 12 to 24 hr following treatment to ensure that the proper reaction takes place.

Avoid prolonged breathing or repeated skin contact. Keep away from heat and open flame. Keep container closed. Use in well-ventilated areas. In enclosed areas, wear an air-supplied respirator. Always wear goggles, gloves, and protective clothing when using. Wash thoroughly after handling. Wash clothing after use. Do not smoke in the vicinity where material is being applied because material contains a combustible organic solvent.

7. CORPS OF ENGINEER'S EVALUATION

Physical and mechanical properties:

Percent solid
(ASTM D 1644, Method A):

Percent water absorption (ambient temperature) (ASTM C 642):

| | |
|--------|-------|
| 1 day | 0.14% |
| 2 days | 0.19% |
| 4 days | 0.24% |
| 7 days | 0.32% |

Ratio of percent water absorption for treated to nontreated specimen (2-day submersion): 4.0%

Percent water transmission:

| | |
|--------|-------|
| 2 days | 0.32% |
| 4 days | 0.52% |
| 7 days | 0.74% |

Ratio of percent water transmission
for treated to nontreated specimen
(7-day diffusion): 21.0%

8. ENVIRONMENTAL CONSIDERATIONS

Reasonable caution should guide the preparation, repair, and cleanup phases of sealant activities involving potentially hazardous and toxic chemical substances. Manufacturer's recommendations to protect occupational health and environmental quality should be carefully followed. Material safety data sheets should be obtained from the manufacturers of such materials. In cases where the effects of a chemical substance on occupational health or environmental quality are unknown, chemical substances should be treated as potentially hazardous toxic materials.

9. AVAILABILITY & COST

Availability: Sil-Act ATS 42 is available in 5-gal pails and 55-gal drums.

Cost: For specific price information, contact the manufacturer or the nearest Sil-Act ATS 42 agent.

10. TECHNICAL SERVICES

Specific technical assistance and information are available from the manufacturer or nearest Sil-Act ATS 42 agent.