GEO-SIL™
RESIST. PROTECT. LAST.

Geo-Sil™ SURFACE TREATMENT 100 | TECHNICAL DATA SHEET | GS-ST-001

Updated May 2026

## SECTION 1 – PRODUCT DESCRIPTION

Geo-Sil Surface Treatment is a proprietary alkaline, water-based silicate-silane blend formulated for DIY application to porous concrete, masonry, and mineral substrates. When diluted with deionized (DI) water and applied to prepared surfaces, Geo-Sil Surface Treatment penetrates the substrate matrix to react with calcium hydroxide ($Ca(OH)_2$) and silica compounds, which densify, harden, and make the surface hydrophobic from within.

**CONCENTRATE PRODUCT MUST BE DILUTED WITH DI-WATER BEFORE USE. DO NOT USE CONCENTRATED PRODUCT (AS SUPPLIED) ON ANY SURFACES.**

### Key Benefits

- **Deep Penetration:** Silane-siloxane chemistry drives penetration into the capillary structure of the substrate, ensuring effective treatment below the surface plane.
- **Surface Densification:** Reacts with free lime to form durable CSH crystals, increasing water resistance, hardness, and abrasion resistance.
- **Alkalinity Conditioning:** Maintains a consistent alkaline environment (pH ~11) to improve coating adhesion and substrate compatibility.
- **Substrate Compatibility:** Suitable for new and existing concrete, block, brick, and poured masonry.
- **NO VOC:** Environmentally responsible formulation.
- **Non-Flammable:** Safe for indoor application with no flash point.

## SECTION 2 – TECHNICAL PROPERTIES

| | |
|---|---|
| Product Code | GS-ST-001 |
| Form | Liquid |
| Color | Colorless to pale yellow |
| Odor | None |
| pH (concentrate) | ~11 |
| Density | ~1 g/mL (9 lb/gallon) |
| Viscosity | Low; water-like (< 10 cP at 70°F) |
| Solids Content | ~8-12% (by weight) |
| Flash Point | None (non-flammable) |
| Freeze Point | <32°F (0°C) – protect from freezing |
| Shelf Life | 12 months (sealed container, properly stored) |
| VOC Content | 0 g/L |
| Dilution Medium | Deionized (DI) water only |
| Typical Dilution Ratio | See Section 6 |
| Coverage Rate | 150–250 sq ft/gallon (diluted), depending on substrate porosity |
| Curing Time | Allow 24–48 hours before topcoat application |
| Packaging | 5oz. ~150 ml, which makes 1 gallon of the product |

## SECTION 3 – SUBSTRATE COMPATIBILITY

| Substrate | Compatibility | Notes |
|---|---|---|
| New Concrete (>28 days cure) | **Excellent** | Optimal substrate for treatment |
| Existing Concrete | **Excellent** | Surface must be clean and open |
| Concrete Masonry Unit (CMU) | **Excellent** | Ensure the surface is free of efflorescence |

| Substrate | Compatibility | Notes |
|---|---|---|
| Brick / Clay Masonry | **Excellent** | Test for absorption prior to full application |
| Natural Stone (granite, limestone) | **Good** | Avoid polished or sealed surfaces |
| Poured Concrete Walls | **Excellent** | Remove from release agents prior to treatment |
| Gypsum-Based Substrates | **Good** | Surface must be clean and open |
| Metal Surfaces | **Not Recommended** | Not intended for metal substrates |
| Wood | **Not Recommended** | Not intended for wood substrates |

## SECTION 4 – SYSTEM OVERVIEW / INTENDED USE

Geo-Sil Surface Treatment is typically applied as a one-step surface treatment and coating system. This TDS describes standalone product use.

### Typical Application Sequence

1. **Surface Preparation** – Mechanical or chemical preparation per Section 5 of this TDS.
2. **Apply Geo-Sil Surface Treatment** – Diluted with DI water per instructions in Section 6 and Section 7.
3. **Allow to React and Dry** – Minimum 6-12 hours; see Section 8 for full cure schedule.
4. **Final Inspection and Quality Control** – Perform tests per Section 9 to verify treatment performance.

## SECTION 5 – SURFACE PREPARATION

Proper surface preparation is **critical** to the performance of Geo-Sil Surface Treatment. The following conditions must be met prior to application. Failure to properly prepare the substrate may result in reduced penetration, incomplete reaction, or failure.

### 5.1 Cleanliness

The substrate must be free of all contaminants, including but not limited to:

- Dirt, dust, debris, and loose particles
- Oils, greases, release agents, and curing compounds
- Existing sealers, coatings, or waterproofing membranes
- Efflorescence and mineral deposits

**Recommended cleaning methods:** Shot blasting (ICRI CSP 3–5), acid etching, or high-pressure water washing. Allow the surface to dry to the **Saturated Surface Dry (**SSD) condition before application.

### 5.2 Surface Profile

Recommended surface profile: **ICRI CSP 2–4** for optimal penetration depth and mechanical bond development.

### 5.3 Moisture Conditions

Surface should be in a **Saturated Surface Dry (SSD)** condition or slightly damp at the time of application.

⚠ DO NOT APPLY TO:

- Wet surfaces or those with standing water
- Frozen surfaces
- Substrates below 40°F (4°C) or above 120°F (48°C)

## SECTION 6 – MIXING / DILUTION INSTRUCTIONS

⚠ IMPORTANT: Deionized Water Required

Always use **Deionized (DI) OR Distilled water** for dilution. Tap water or hard water may contain mineral ions (calcium, magnesium, chlorides) that can react with the product chemistry, form precipitates, and significantly reduce treatment effectiveness.

### Step-by-Step Mixing Procedure

1. Shake or gently stir the Geo-Sil Surface Treatment concentrate before use to ensure homogeneity.
2. Slowly add the concentrate to the DI water while stirring continuously. **Do NOT add water to the concentrate.**
3. Mix gently until completely homogeneous. **Do not shake vigorously** – avoid aeration of the solution.
4. Use the diluted solution within **7 days** of mixing.

## SECTION 7 – APPLICATION INSTRUCTIONS

### 7.1 Equipment

- Low-pressure sprayer (pump sprayer or airless sprayer at low pressure setting)
- Roller (3/8" nap or greater for proper product pick-up and release)
- Brush (for detail work, edges, and confined areas)
- Clean, dedicated equipment free of residue from other products, coatings, or chemicals

### 7.2 Application Procedure

1. Apply the DILUTED Geo-Sil Surface Treatment evenly using a sprayer or roller in a single, uniform coat. Work in manageable sections (50–100 sq ft) to maintain a wet edge throughout application.
2. Allow the product to penetrate into the substrate. **Do not let the product dry on the surface** – keep the surface wet for a minimum of **5–10 minutes**. **Do not puddle**.
3. If the substrate absorbs the product quickly (visible dry spots), apply a **second pass immediately** while the surface is still wet (**wet-on-wet** application technique).
4. Allow the treated surface to cure for a minimum of **12-24 hours.**
5. Clean all equipment immediately after use with clean water. See Section 12 for cleanup procedures.

### 7.3 Application Conditions

| Parameter | Acceptable Range |
|---|---|
| Ambient Temperature | 40°F–95°F (4°C–35°C) |
| Surface Temperature | 40°F–120°F (4°C–48°C) |
| Relative Humidity | 20%–90% (non-condensing) |
| Wind Speed (outdoor) | < 15 mph to prevent premature surface drying |
| Substrate Moisture | Damp to SSD (not wet, not puddled) |

## SECTION 8 – DRYING AND CURE TIMES

| Stage | Time (at 70°F / 50% RH) |
|---|---|
| Surface dry (tack-free) | 30–60 minutes |
| Light foot traffic | 4–6 hours |
| Full penetration/reaction | 12–48 hours |
| Topcoat / subsequent coating | 24–48 hours minimum |

**ⓘ NOTE: Temperature & Humidity Effects**
Temperature and humidity significantly affect drying and curing times. Low temperatures and high humidity will extend all cure stages. Allow **additional cure time below 55°F (13°C)**. Do not apply if temperatures are expected to drop below 40°F (4°C) within 24 hours of application. High temperatures (>85°F) and low humidity may accelerate surface drying – monitor closely and maintain a wet surface during dwell time.

## SECTION 9 – QUALITY CONTROL / INSPECTION

Before Application

- Verify substrate condition, moisture content, surface profile, and cleanliness meet requirements in Section 5.
- Conduct a **small test area application** (minimum 10 sq ft) and allow fully cure before proceeding with full-scale application.
- Confirm dilution ratio is correct for substrate porosity per Section 6.

During Application

- Monitor coverage rate to ensure uniform application within the specified range (150–250 sq ft/gallon diluted).
- Monitor dwell time and ensure the surface remains wet for the minimum 10–15-minute penetration period.
- Inspect for pooling, runs, or uneven application – correct immediately using a squeegee or mop.

After Application

- Inspect the area treated for **uniform surface appearance**. Properly treated areas typically exhibit a slight, uniform sheen once fully cured.
- Perform the Water Drop Absorption Test (below) to verify treatment penetration.
- Document coverage, dilution ratio, and conditions for project records.

**ⓘ Water Drop Absorption Test Procedure**
Place a small drop (approximately 0.5 mL) of water on the treated and fully cured surface. **Penetration of the drop would not occur within 60 seconds**, indicating acceptable treatment. If water penetrates significantly, retreatment may be required, or contact Geo-Sil LLC technical support for guidance.

## SECTION 10 – LIMITATIONS AND PRECAUTIONS

- **Do Not Use on Frozen or Cold Surfaces:** Application below 40°F (4°C) may prevent proper penetration and chemical reaction within the substrate matrix.
- **Do Not Apply in Rain or High Humidity:** Standing water will dilute and wash away product before penetration can occur.
- **Do Not Mix with Hard Water:** Mineral ions interfere with silicate reactions. Use only deionized (DI) water for dilution.
- **Do Not Mix with Other Chemicals:** Do not blend Geo-Sil Surface Treatment with acids, solvents, other sealers, or curing compounds. Incompatible mixing may cause dangerous reactions or product failure.
- **Protect Aluminum, Zinc, and Galvanized Surfaces:** The alkaline pH (~11) can corrode and damage these metals. Protect all adjacent metal surfaces prior to application using tape or sheeting.
- **Protect Vegetation and Glass:** Rinse overspray from plants, glass, and painted surfaces immediately with clean water. Prolonged contact may cause etching or staining.
- **Do Not Apply to Non-Mineral Substrates:** Not intended for metal, wood, plastic, or fiberglass surfaces.
- **Shelf Life – Opened Container:** Once the container is opened, use it within 6 months. Do not use it if the product has irreversibly gelled, permanently separated, or appears discolored. Contact Geo-Sil LLC if the product condition is uncertain.

## SECTION 11 – STORAGE AND HANDLING

### Storage

- Store in a cool, dry, well-ventilated area between **40°F–110°F (4°C–43°C)**.
- Keep containers **tightly sealed** when not in use to prevent contamination and evaporation.
- **Protect from freezing.** If the product freezes, it may not be recoverable – do not use frozen or previously frozen product without written authorization from Geo-Sil LLC.
- Keep away from direct sunlight and heat sources. Do not store near HVAC units, boilers, or radiators.
- Do not store near acids, strong oxidizers, or reactive chemicals.
- **Shelf Life:** 12 months from the date of manufacture (sealed container, proper storage conditions).

### Handling

- Always wear appropriate PPE: **chemical-splash goggles, nitrile gloves, and protective clothing** when handling concentrate.
- Wash hands thoroughly with soap and water after handling and before eating, drinking, or using restroom facilities.
- Refer to the **Geo-Sil Surface Treatment Safety Data Sheet (SDS, Product Code GS-ST-001)** for complete health and safety information, first aid measures, and emergency procedures.

## SECTION 12 – CLEANUP

### Equipment Cleanup

Clean all tools, sprayers, rollers, and mix containers immediately after use with clean water. Flush sprayer lines and tips thoroughly. Allow equipment to air dry. Do not allow products to dry in sprayer lines or nozzles.

### Spill Response

Absorb spilled product with inert material (sand, vermiculite, or dry earth). Collect the absorbed material in a labeled, sealed container for disposal in accordance with applicable local regulations. Flush the spill area with water. **Do not allow spilled product to dry on unintended surfaces** – dried product may require mechanical removal.

### Skin and Eye Contact

Refer to **Section 4 of the SDS (GS-ST-001)** for complete first aid guidance. In general, rinse affected skin or eyes thoroughly with large quantities of clean water for a minimum of 15 minutes and seek medical attention if irritation persists.

## SECTION 13 – PACKAGING AND ORDERING

| Package Size | Product Code | Approximate Coverage (Diluted) |
|---|---|---|
| 5 oz. Concentrate Bottle makes a gallon of the product. | GS-ST-001-1G | 150–250 sq ft |

*Coverage rates are approximate and depend on substrate porosity and dilution ratio. Conduct a test application to determine actual consumption for your specific project conditions.*

To Order / For Technical Support
Geo-Sil LLC
PO BOX 37324
Raleigh, NC 27627
Phone: (919) 238-3177
Email: info@GeoSiltech.com
Website: www.GeoSiltech.com
*Geo-Sil technical representatives are available Monday–Friday, 8:00 AM–5:00 PM Eastern Time, to assist with product selection, system specifications, and project support.*

## SECTION 14 – DISCLAIMER

ⓘ Legal Notice
The information contained in this Technical Data Sheet is based on the best available technical data and field experience at the time of publication. Geo-Sil LLC reserves the right to change product formulations, specifications, and recommendations without prior notice.
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