

# TECHNICAL DATA

## CSI SPECIFICATIONS

### Silacote™ primer, paint, textured paint

#### MANUFACTURER

Sakret Plus SIA  
Riga, LATVIA

#### MANUFACTURER MARKETING DISTRIBUTOR

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Product Guide Specification  
(CSI) Specification Format  
Section: 09980

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Specifier Notes: This product guide specification is written according to the Construction Specifications Institute (CSI) MasterFormat, Three-Part SectionFormat and PageFormat, contained in the CSI Manual of Practice. Five-digit section numbers are from MasterFormat, 1995 Edition.

The section must be carefully reviewed and edited by the Architect to meet the requirements of the project and local building code. Coordinate with other specification sections and the drawings. Delete all "Specifier Notes" when editing this section.

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#### SECTION 09980

#### LONG-LIFE MINERAL SILICATE PAINT

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Specifier Notes: This section covers Silacote™ 'Liquid Rock®' Mineral Silicate Paint for non-trafficable inorganic concrete, plaster/stucco, cement board, GFRC (Glass Fiber reinforced Concrete), concrete block, aerated autoclaved concrete, natural stone, marble, unglazed clay and concrete brick, gypsum wall-board [walls and ceilings], unsealed wood and existing properly adhered clean cementitious and organic coatings. [No guarantees would apply to pre-painted organic surfaces or glazed substrates as the Silacote would be depending upon the existing coating for adhesion but greater improvements for health (Asthma and Allergy sufferers) and fire safety can be achieved (Class B Flame Spread, Class II BOCA, UBC).]

SILACOTE Mineral Silicate Paint is made from natural inorganic compounds from the earth strata, such as quartz, different minerals and inorganic mineral colorants, all bound together with a potassium silicate binder. When coated on to inorganic substrates such as concrete, plaster, stucco, concrete block, concrete bricks, marble, natural stone and other inorganic masonry substrates, the SILACOTE bond locks chemically to these substrates through a petrification or silification process to form an insoluble compound of paint and substrate. Very long life can be expected when applied correctly to compatible inorganic substrates. Buildings in Europe have had successful silicate paint applications that have lasted over 100 years.

The Sheraton Hotel in St. Louis, MO was coated with this same technology twenty years ago and it is still in great shape with many more years of life still left in the coating.

SILACOTE™, approved and listed by 'GreenSpec', is environmentally safe - representing a technology that has no detrimental effects on the environment from manufacture through application to disposal in landfill. The coating is non-static, non-toxic and non-allergenic making it health safe for interior use. Being inorganic in content it is inert so it will not support algae, fungi or toxic mold growth. The coating has a high breathability rate allowing moisture to escape from walls, ceilings, cavity walls and partitions, keeping these areas dry and reducing the possibility of toxic mold or fungi growth. Traditional organic paints do not breathe and so walls, ceilings, cavity walls and spaces between partitions can trap moisture creating the perfect environment for algae, fungi and toxic mold spores to form, which can lead to Sick Building Syndrome (SBS).

The petrification process, to evolve the insoluble compound of paint and inorganic substrate, results in a micro-crystalline structure that has the ability to reflect and reduce heat gain. This is important to reduce the stress cracking of the masonry substrate. It also has economic value in helping to reduce air conditioning loads, particularly in high temperature climates.

Organic paints increase heat gain to the substrate: the darker the color the more the heat gain. This heat gain brings the moisture, along with alkali and other mineral salts [efflorescence] from the substrate, to the undersurface of the paint film, pushing the paint film off the substrate. This leads to water bubbles, discoloration and early failure of the organic paint. The SILACOTE™ is not affected. It will not crack, craze or peel due to its chemical attachment that uses these alkali salts to create the insoluble compound of paint and substrate.

This micro-crystalline structure of the SILACOTE™ also diffuses light bringing about a beautiful 'true color' matte finish. This matte finish provides architectural interest in differing light levels and with the 'textured' finish there is the ability to create patterns or designs with the thicker coating. Traditional organic coatings reflect the light, providing a glare in bright sunlight, and generally offers little life to the structure. SILACOTE™ helps to bring the structure alive. The coating is also not affected by ultra violet light providing a light fast, exceptional long life that runs into many decades of trouble free use. Independent tests under ASTM G53 [new test ASTM G154] 'UVB and Humidity Cycles' for accelerated weathering confirmed that after 4,000 hours the SILACOTE™ was not affected in any way. Organic paints begin to chalk, fade and deteriorate in generally half of this timeframe.

One of the most important performance characteristics of SILACOTE™ is its incombustibility. It meets ASTM E1354. ASTM tests by independent laboratories confirm that the product provides a NFPA:101 CLASS A Flame Spread rating with zero smoke development under ASTM E84 for use on concrete and masonry substrates and also on Gypsum Board applications. This Class A rating equates to Class I in national building codes such as BOCA, UBC, etc. Traditional organic paints will burn, giving off heavy toxic smoke, and will spread the flame quickly. The SILACOTE offers a more fire safe environment that should help to provide more time to escape in a fire situation. This should save many lives.

Consult SILACOTE USA LLC for assistance in editing this section for specific applications.

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PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Long life mineral silicate paint for exterior and interior concrete, masonry, gypsum board and unfinished interior wood surfaces. Can also be diluted with SILACOTE PRIMER to offer a STAIN effect.

1.2 RELATED SECTIONS

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 Specifier Notes: SILACOTE can also be used on interior wood and timber. Edit the following list as required for the project. List other sections with work directly related to the application of the mineral silicate paint.  
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- A. Section 03300 - Cast-in-Place Concrete.
- B. Section 03330 - Architectural Concrete.
- C. Section 03400 - Precast Concrete.
- D. Section 04200 - Masonry Units.
- E. Section 04400 - Stone.
- F. Section 09220 - Portland Cement Plaster.
- G. Section 09910 - Paints.
- H. Other: - Gypsum Board, Unglazed Clay Bricks, Autoclaved Concrete, Cement Board, Tilt-up Concrete, Unsealed wood and Timber (under certain conditions).

1.3 SUBMITTALS

- A. Comply with Section 01330 - Submittal Procedures.
- B. Product Data: Submit manufacturer's product data, including physical properties, coating properties, surface preparation, application instructions and texture finishes and colors available.
- C. Samples: Submit one 75mm x 75mm sample for each finish and color selected by the Architect.
- D. Warranty: Submit manufacturer's 10 year durability warranty for painted areas.

1.4 QUALITY ASSURANCE

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 Specifier Notes: Describe requirements for a meeting to coordinate the application of the mineral silicate paint and to sequence related work.  
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- A. Pre-Application Meeting: Convene a pre-application meeting [ ] [ ] weeks before the start of application of paint. Require attendance of parties directly affecting work of this section, including the Contractor, Architect, approved applicator and representative of manufacturer or supplier. Review protection of surrounding areas, surface preparation, application and final cleaning. Review coordination with other work.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Delivery: Deliver materials to site in manufacturer's original containers and packaging, with labels clearly identifying product name and manufacturer.
- B. Storage:
  - 1. Store materials in accordance with manufacturer's instructions.
  - 2. Keep containers sealed until ready for use.

- 3. Avoid prolonged exposure of containers to direct sunlight.
- 4. Storage Temperature: 50 to 95 degrees F (10 to 35 degrees C).

- C. Handling: Protect materials during handling and application for prevent damage.

1.6 ENVIRONMENTAL REQUIREMENTS

- A. Do not apply at ambient temperatures below 50 degrees F (10 degrees C) or above 86 degrees F (30 degrees C). Ensure that substrate temperature is not lower than 50 degrees F (10 degrees C) even though ambient air temperature is above 50 degrees F (10 degrees C).
- B. Do not apply to damp or wet substrate or when rain is expected within 2 hours.
- C. Do not apply under windy conditions such that the paint contacts surfaces not intended.
- D. In very humid climates and in very dry, low humidity climates, where the substrates and very porous, apply SILACOTE Primer/Sealer, in accordance with manufacturer's instructions, at least 12 hours before a SILACOTE application to ensure a dry and/or a less porous substrate. Alternatively, apply a thin layer [brush or trowel coat] of the inorganic SILACOTE 'Remont' surfacing material.

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 Specifier Notes: Provided the substrate is sound and dry and paint is applied in accordance with manufacturer's instructions, a warranty is available. Consult SILACOTE USA LLC for confirmation of suitability.  
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1.7 WARRANTY

- A. Provide a minimum ten [10] year durability warranty for painted areas.

PART 2 PRODUCTS

2.1 MANUFACTURER

Sakret Plus SIA.  
 Riga, LATVIA

2.2 MARKETING, DISTRIBUTION, TECHNICAL ASSISTANCE

- A. NORTH AMERICA [USA] and ROW:  
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2.3 NON-COMBUSTIBLE, NON-TOXIC, LONG-LIFE MINERAL SILICATE PAINT

A. Mineral Silicate Paint for Concrete and Masonry Surfaces: SILACOTE Mineral Silicate Paint. This coating is known in Europe as 'Hansa Silicat' mineral silicate paint.

1. Generic Components: Water-borne potassium silicate solution using durable, light fast inorganic colorants and inorganic mineral fillers all free of heavy metals.
2. Solvent Type: Water-based, solvent free [0% VOC].
3. Number of components: 1.
4. Solids Content: 50 percent + or -
5. Density: 1.4 kg/l
6. pH: 11.5
7. Coverage Rate:  
Smooth Matte Finish: 180/200 square feet per gallon per coat.  
Textured Matte Finish: Varies with design 50/120 square feet per gallon.
8. Number of coats required: 2
9. Film Thickness: The silicate inorganic coating is chemically bonded to substrate and does not provide a 'film' as such, as do traditional organic coatings.  
Wet Coating Thickness: 250 microns + or -  
Dry Thickness: 150 microns + or -
10. Algae and Mold Growth: Inorganic, high alkali, sterile surface resists algae and mold attack.
11. Fire Resistance: Non-combustible. NFPA:101 Class A Flame Spread with zero smoke development as confirmed under ASTM 1354 and ASTM E84. Achieves maximum flame spread rating. Class I under BOCA, UBC, etc.
12. Adhesion to Substrate: Forms chemical bond within inorganic mineral type substrates. Case hardens surface, will not peel, flake or crack.
13. Seals Substrate: Inhibits freeze/thaw damage. Not affected by acid rain or pollutants.
14. Ultra Violet Resistance: High inorganic content provides excellent UV resistance. ASTM G53 [new ASTM G154] accelerated weathering test. [Exposure to UVB and humidity cycles for 4,000 hours – coating was unaffected]
15. Water Vapor Transmission: High water vapor transmission factor. Over 90%. Reduces carbonation.
16. Insulation Qualities: Light and heat reflected due to micro-crystalline structure. Reduces heat gain significantly reducing cracking of substrate.
17. Water Resistance: Sheds water but not to be considered a waterproof coating. The use of the SILACOTE Primer/Sealer and/or 'Remont', will provide a higher degree of waterproofing capability, depending upon the substrate density and climate condition.
18. Environmental: Environmentally safe. Approved and listed by 'GreenSpec' in 4th Edition 2003/4.

B. Finish and Color: Paint texture and color as selected by the Architect from manufacturer's standard finishes. Custom colors are available. Supply color sample for matching.

Finishes:

1. Matte - in either 'smooth' or 'textured' finish. Stain effect - SILACOTE paint diluted 60% to 80% with SILACOTE primer.
2. Colors: Available in 252 standard colors plus hundreds of derivatives of these colors or can be mixed to special custom colors. Provide samples for color matching.
3. Decorative: The heavy texture paint coating could be applied with a trowel or other decorative tools to provide a thin sculptured finish. The addition of fine sand or chalk can enhance this decorative aspect. For a thicker trowel finish use the SILACOTE 'Remont' surfacing material. The 'Remont' is also used for making repairs to all inorganic substrates.

C. Mineral Silicate Primer for Concrete and Masonry Surfaces: SILACOTE Potassium Silicate Primer. Known in Europe as 'Hansa Silicat Primer'.

1. Generic Components: Water-borne potassium silicate solution.
2. Solvent Type: Water based, solvent free [0% VOC's]
3. pH: 11.5
4. Solids Content: 15 percent + or -
5. Density: 1kg/l
6. Thinner: Water
7. Coverage Rate: 200/240 square feet per gallon
8. Coats Required: As per paint system 'A', 'B' or 'C'

D. Mineral Silicate Textured Paint for Concrete and Masonry Surfaces: SILACOTE Mineral Silicate Texture Coat. Known in Europe as 'Hansa Silicat Struktura'.

1. Generic Components: Water-borne one component silicate paint that contains structure fillings (chalk).
2. Solvent Type: Water based, solvent free [0% VOC's]
3. pH: 11.5
4. Solids Content: 70 percent + or -
5. Density: 1.60 - 1.68 g/cm<sup>3</sup>
6. Thinner: SILACOTE Primer
7. Coverage Rate: 60/120 square feet per gallon. Varies with substrate texture and aesthetic design desired.
8. Coats Required: One

E. SILACOTE Cementitious 'Remont' Surfacing Material and Crack Repair for Concrete, Masonry, Gypsum Board and Previously Painted Surfaces.

1. Density: 0.85 g/cm<sup>3</sup>
2. pH: 12-13 (when water added)
3. Color: Very Pale Grey
4. Size of corns: Max 500my 90%<350my
5. Mixing: Add 30-40% fresh water
6. Coverage: Varies with surface quality and thickness desired.
7. Water Permeability: 0.1 mg/m hPa
8. Working Temperature: min 40°F

3.1 EXAMINATION

- A. Inspect surfaces to receive paint. Notify the Architect in writing if surfaces are not acceptable. Do not begin surface preparation or application until unacceptable conditions are corrected.

3.2 PROTECTION

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 Specifier Notes: Describe requirements for protecting surrounding areas during painting.  
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- A. Protect glass, aluminium, woodstains, painted surfaces including galvanized steel, glass glazed tiles, terra cotta tiles, marble and travertine from overspray and residue.
- B. If the application is to be by spraying, apply paint before installation of windows, if practical.

3.3 SURFACE PREPARATION

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 Specifier Notes: SILACOTE must have the opportunity to bond directly to the substrate chemically. Therefore it is essential that the substrate be completely clean, dry and free of contaminants to affect this bond.  
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- A. Remove all dirt, dust, oil, pollutants, curing compounds, previous coatings and other materials that interfere with the penetration required to bond the paint to substrate. Form release agents should be 'Non-Transferable'.
- B. Repair, patch and fill all cracks, voids, blemishes, defects and damaged areas in surfaces as approved by the Architect. Allow repair materials, such as the SILACOTE inorganic 'Remont' surfacing material, to cure completely before application of paint. Ensure any defects match surrounding surface texture before applying the SILACOTE paint.

3.4 APPLICATION

- A. The SILACOTE may require a primer for very dry, low humidity climates where the substrate is very, very porous. The SILACOTE primer/sealer should be mixed with clean, potable water on a 1:1 ratio and then applied evenly to all substrate surfaces to be painted to ensure an even drying time for the finish paint on that area. Do the same for very damp climates to seal the substrate. For normal average applications a separate primer coat is not required. The primer is added to the first coat of paint in a 1:2 ratio: one primer to two-paint. Confirm with the authorized product supplier, or Silacote USA, the SILACOTE paint system ['A', 'B' or 'C'] that is best suited for the specific application.
- B. Apply paint to substrates in accordance with manufacturer's instructions. Apply each of the coatings in right angle directions to each other to ensure proper coverage. Always keep a wet edge and work to corners, edges and openings before stopping. This will eliminate any potential for blotchy areas and roller-tracking or tram-lining. The preferred application is by HVLP or air-assisted spray. Wet-on-wet applications can also be done to reduce job time. Natural fiber rollers and brushes are preferred. These accessories can be obtained from SILACOTE USA.

- C. 1. Before applying the first coat when using Paint System 'A', mix SILACOTE primer/sealer [ratio 1:2] with the SILACOTE paint. This will ensure the first coat will achieve proper penetration.
- 2. Apply second coat at right angles to first coat to obtain best coverage and protection. The 'smooth' finish final coat may be thinned up to 10% with the SILACOTE primer/sealer. The 'textured' finish may be thinned up to 15% with the SILACOTE primer/sealer. Water is NOT to be added to the primer for mixing with paint. Water is NOT to be added to the paint.
- 3. SILACOTE dries very quickly, making it difficult to maintain the 'wet edge' when using a roller. Always paint in the cool of the day, preferably in shadow, to prevent the roller 'tram-lining'. Spraying eliminates this problem but the roller applicator should follow the spray applicator to ensure that drips and runs are taken care of.
- D. Allow 12 hours between all primer and finish coats.
- E. Keep containers sealed until ready for use.
- F. Do not dilute or alter primer or paint except for required thinning.

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 Specifier Notes: The SILACOTE paint and primer system is a potassium silicate base. All surfaces or substrates must not be coated with sodium silicate based coatings as the SILACOTE will not be able to chemically cure and bind to the substrate chemistry. It is also important for silicate paints, as well as organic paints, to ensure that sodium based additives to the concrete mix are not used.

Sodium additives will bleed out of the concrete undermining virtually all paint coatings. In coastal areas where high winds and salt spray are normal, the substrates must be power washed and rinsed to eliminate as much of the salt content on the surface of the substrate as possible before the SILACOTE application.

Edit the following as required for the project.  
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- G. Avoid sodium silicate concentrations:
  - 1. Do not apply the SILACOTE Paint System over existing coatings with a sodium silicate base.
  - 2. Do not allow any sodium silicate based additives to the concrete or plaster mix designs.
  - 3. In coastal areas of wind driven rain, salt spray and high humidity, substrates to be coated must be power washed and rinsed to ensure that the content on the substrate surface is either removed or significantly diluted to allow proper penetrations and bonding.
- H. Avoid over spray, wind drift and splash of paint.

3.5 FINAL CLEANING

- A. Remove and dispose of temporary materials used to protect surfaces not intended to receive paint.
- B. Repair, restore or replace to the satisfaction of the Architect, materials or surfaces not intended to receive paint, damaged by exposure.

END OF SECTION