

# Beecko-SOL Fine & Coarse Mineral Sol-Silicate Finish

Exterior/Interior

Traditional sol-silicate exterior/interior paint for all raw uncoated or synthetic resin coated masonry, concrete or other mineral façades and walls. Sol-silicate paints are often used on renovation, restoration and new construction projects where a wide application parameter is required for a direct application and or where a product is required that complies with DIN 18363 2.4.1. Beecko-Sol is a universal sol-silicate breathable paint designed for direct application to mixed or previously painted substrates.

## 1. Product Properties

Solvent free, silicate emulsion paint with silica sol in accordance with VOB/C DIN 18363 2.4.1. Inseparable bonds are created between Beecko-Sol and its substrate through a chemical reaction called silicification. This reaction between the substrate and potassium silicate (water glass) produces a microporous structure which incorporates the mineral pigmented finish. The perfect adhesion and silicification, even on critical, semi-water repellent and synthetic-resin coated façades, offers a cost-effective mineral coating solution with maximum durability and protection. The Beecko-SOL sol-silicate system is for universal use on lime and cement stucco/render/plaster, concrete, brick, terra cotta, CMU, GFRC, stone, AAC and many other masonry or mineral façade surfaces. Also ideally suitable for external thermal insulation composite systems (ETICS/EIFS) and weathered, matte emulsion and silicone resin coatings. Beecko-SOL is a universal matte renovation coating with maximum water vapor permeability and a mineral profile.



### 1.1. Composition

- Pure mineral potassium water glass, produces the best breathability properties
- Silica sol for added application flexibility, ideal single product for projects with mixed substrates
- Inorganic pure mineral pigments: lightfast, non-fading even in the most extreme conditions
- Organic content < 5%, complies with silicate paint standard (VOB/C DIN 18363 2.4.1.)
- Solvent free, extremely low VOC's

### 1.2. Technical properties

#### 1.2.1. Overview

- Use on mixed surface façades
- BEECK ASF® Active Silicate Formulation – This BEECK exclusive formulation gives you the best silicate bonding properties and the most durable finish.
- Great bonding even on synthetic resin based substrates
- Mineral matte finish, highly desirable with luminescent qualities even in low light
- Mineral finish stays clean longer and is easy to clean when necessary
- Extremely high water vapor permeability and valuable building physics properties
- Maximum colorfastness A1 (BFS leaflet No. 26) - best possible - No fading, UV stable
- Natural alkalinity helps to prevent algae and mold
- Environmentally responsible, sustainable, extremely low VOC product containing no solvents
- Re-mineralizes surfaces - make it look new again
- High hiding power, easy coverage
- Low tension, expanded areas of application, even on previously painted surfaces
- Nonflammable – will not burn
- Pollution and acid rain resistant
- Non-film-forming – surface remains breathable
- Exceeds the strictest air quality regulations, can be applied anywhere
- Contributes to LEED

#### 1.2.2. Important building physics characteristics\*

Parameter	Value	Conformity
Density 20°C:	1.44 – 1.60 kg / L	
pH value 20°C:	11	
Dynamic viscosity 20°C:	5,000 - 8000 mPas	
W <sub>24</sub> value:	0.08 kg / (m <sup>2</sup> h <sup>1/2</sup> ) / class W3	EN 1062-3
Vapor permeability (H <sub>2</sub> O):	(Best in Class) 0.01 m, s <sub>d</sub> value/class V1	EN 1062-1
	75-85 Perms	ASTM E96
V value: Water vapor transmission rate	≥ 1900 (g/m <sup>2</sup> d)	EN 1062-1
Colorfastness**:	(Best in Class) A1	BFS Information Sheet No. 26
Gloss level at 85°:	dull matte	EN ISO 2813
Flammability class:	A2 nonflammable	EN 13501-1, DIN 4102
VOC content (max.): White or tinted	≤ 2 g / L	ChemVOCFarV, Cat. A / c
Thermal Expansion	Matches the masonry surface	
Flash point	nonflammable	
Accelerated Weathering	pass	ASTM G154
Wind Driven rain	pass	ASTM E514

\* applicable to White | \*\* applicable to tinted

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## 1.2.3. Color

- White and all 200 colors in the BEECK Mineral Paint Color Chart
- Color groups: I – IV on the BEECK color charts
- Monochrome color shades: C-651, C-652, C-653, C-654, C-655, C-656, C-657, C-658, C-659, C-660 and C-661
- Custom color matching available. Contact BEECK about getting your color matched
- Due to thermal effects of the substrate it is recommended to only use light colors (LV > 40) on ETICS/EIFS

## 2. Use

### 2.1. Substrate requirements

- The substrate must be clean, dry, sound, and stable. It must be free from efflorescent, salts, oils and other incompatible substances.
- Suitable substrates are: mineral, porous, absorbent and or partially water repellent as well as organically bonded surfaces with at least some mineral character.
- All new plaster, stucco, render, concrete or masonry must be properly cured before painting.
- Carefully patch areas needing repair with material of the same type and texture.
- Use mortar or plaster to repair substrates with large cracks. Pretreat surfaces that have small or hairline cracks all over with BEECK Beecko-Sol Coarse, BEECK Quartz Filler for larger cracks and imperfections or BEECK Bonding Coat Coarse.
- Uniform surface and product application is important to achieve a high-quality substrate. This is most important on surfaces that receive glancing light or where surface appearance is critical.
- Horizontal and slightly sloping surfaces, like sills and the tops of walls, traditionally weather faster than vertical walls and may require more frequent maintenance. Additional intermediate coats of Beecko-Sol can be applied to these surfaces to extend the maintenance cycle.
- Remove, treat and rinse all algae and fungi infested surfaces. Clean biological stained façades with Beeck Mineral Paints D/2 Biological Solution according to the factory specifications.

### 2.2. Brief information on the standard system

- Apply two coats of Beecko-SOL. Additional coats extend the lifecycle of the coating.
- Primer and possible intermediate coat, optionally with Beecko-Sol Fine or Coarse, same color topcoat with Beecko-Sol Fine.
- Optimally adjust Beecko-SOL Coarse or Fine with BEECK Fixative to allow for substrate texture and absorbency by adding Fixative mixture up to 24 oz. per gallon. Do not exceed 20%. Typically, only on the first coat. On normal applications the finish coat is applied without the addition of Fixative. On low absorbent smooth substrates, no fixative may be needed.
- For a better finished appearance, on old or repaired substrates, use Beecko-SOL Coarse as the first coat to visually equalize the surface and topcoat in same color with Beecko-SOL Fine.
- Imperfect or surface damaged substrates: apply BEECK Quartz Filler or BEECK Bonding Coat Coarse over the entire surface as a pretreatment. Perform trials on site to determine the best product for your needs.
- For surfaces exposed to severe weather, e.g. on church towers, sills or noise barriers. An additional intermediate coat of Beecko-SOL Fine or Coarse is recommended to equalize the overall weathering of all surfaces.
- Optional treat the substrate with BEECK HBP Silane 100 for added water repellency.

### 2.3. Substrate and preparatory treatment

- **Old film-forming coatings, synthetic resin renders/stucco, external thermal insulation composite systems (ETICS/EIFS):**
  - Remove all cracked or loosely bonded old coatings.
  - Check the adhesion and soundness of all remaining coats.
  - Thoroughly clean tightly bonded coatings and renders/stuccos.
  - Clean thoroughly, check for moisture damage and efflorescence (e.g. salt edges, iron salts) and repair all defects.
  - Clean, treat and rinse all algae and fungi stained surfaces with Beeck Mineral Paints D/2 Biological Solution or a fungicidal treatment.
  - Make repairs with proper mortar matching existing surface texture.
  - Prime highly absorbent or crumbling surfaces with BEECK MBA-Fixative, thinned with 2 parts water. Any product that remains wet on the substrate surface after 10 minutes remove.
  - Note regarding façade cleaning: synthetic resin renders/stuccos swell when they absorb water and are slow to dry, allow for sufficiently long drying periods between cleaning and coating. Clean composite systems, insulating renders and similar pressure-sensitive surfaces gently, without damaging the material.
- **Lime, lime-cement or cement plaster/stucco/render:**
  - Allow proper drying and curing of newly installed surfaces.
  - Clean thoroughly, check for moisture damage and efflorescence (e.g. salt edges, iron salts) and repair all defects.
  - Use an etching fluid to remove sinter skin on solid new mortar, plaster/stucco/render. Do not etch thin coat renders and composite materials (for example, ETICS/EIFS).
  - Clean, treat and rinse all algae and fungi stained surfaces with Beeck Mineral Paints D/2 Biological Solution or a fungicidal treatment.
  - Prime highly absorbent surfaces with BEECK Fixative, thinned with 2 parts water. Any product that remains wet on the substrate surface after 10 minutes remove.



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- For sanding surfaces, flow coat several times wet-on-wet with the following mixture, 1 part BEECK Fixative and 5 parts water, until completely saturated. Any product that remains wet on the substrate surface after 10 minutes remove. Process may be repeated every 12 hours until substrate is sound.
- **Concrete, GFRC, fiber cement boards and other cementitious surfaces:**
  - Allow proper drying and curing of newly installed cement.
  - Use an etching fluid to remove sinter skin on solid new surfaces.
  - Clean thoroughly, check for moisture damage and efflorescence (e.g. salt edges, iron salts) and repair all defects.
  - Clean, treat and rinse all algae and fungi stained surfaces with Beeck Mineral Paints D/2 Biological Solution or a fungicidal treatment.
  - Prime highly absorbent surfaces with BEECK Fixative, thinned with 2 parts water. Any product that remains wet on the substrate surface after 10 minutes remove.
  - For sanding surfaces, flow coat several times wet-on-wet with the following mixture, 1 part BEECK Fixative and 5 parts water, until completely saturated. Any product that remains wet on the substrate surface after 10 minutes remove. Process may be repeated every 12 hours until substrate is sound.
  - For formed concrete, use a high-pressure cleaner or whatever method is needed to clean concrete pore-deep and to remove any residual release agent, then rinse with plenty of clean water.
  - For best results, prime fiber cement substrates that are being used exterior with BEECK HBP Silane 100 and BEECK Bonding Coat Fine/Coarse before coating with Beecko-SOL.
- **Natural stone, brick, terra cotta, CMU and other masonry:**
  - Allow proper drying and curing of newly installed masonry.
  - Clean thoroughly, check for moisture damage and efflorescence (e.g. salt edges, iron salts) and repair all defective joints and bricks/masonry.
  - Clean, treat and rinse all algae and fungi stained surfaces with Beeck Mineral Paints D/2 Biological Solution or a fungicidal treatment.
  - Prime highly absorbent surfaces with BEECK Fixative, thinned with 2 parts water. Any product that remains wet on the substrate surface after 10 minutes remove.
  - For sanding surfaces, flow coat several times wet-on-wet with the following mixture, 1 part BEECK Fixative and 5 parts water, until completely saturated. Any product that remains wet on the substrate surface after 10 minutes remove. Process may be repeated every 12 hours until substrate is sound.
  - For CMU apply BEECK Quartz Filler or BEECK Bonding Coat Fine / Coarse over the entire surface as a pretreatment to fill small holes or voids. Perform trials on site to determine the best product for your needs
- **If your substrate was not listed or if you have questions contact your BEECK representative for recommended application and surface prep.**
- **Unsuitable substrates** are large horizontal or slightly sloping surfaces exposed to the weather, walking surfaces, unstable substrates, efflorescent surfaces containing salts and non-alkali-resistant substrates such as wood-based materials (MDF, OSB), many old oil-based coatings, loam and plastics as well as non-firm and plasto-elastomeric coatings.
- **Defective substrates** require specific approaches. Contact your BEECK representative regarding recommended application and surface prep for your specific condition.
  - Clean, treat and rinse all algae and fungi stained surfaces with Beeck Mineral Paints D/2 Biological Solution or a fungicidal treatment.
  - Clean thoroughly, check for moisture damage and efflorescence (e.g. salt edges, iron salts) and repair all defective joints and surfaces.

## 2.4. Application instructions

### 2.4.1. General information

Check substrate suitability as required (see 2.1, 2.2 and 2.3). Pay particular attention to the absorbency, strength and texture of the respective substrate. Prepare a trial or test area before using on high visibility and critical surfaces. Ensure that the product is applied by a qualified person.

- The substrate must be clean, dry (less than 30% humidity), sound, and stable. It must be free from efflorescent, salts, oils and other incompatible substances
- Carefully cover surfaces which are not to be treated – especially glass, ceramics, window sills, expansion joints, lacquer and anodic coatings – protect them from splashes, drips or splatters.
- Provide personal protective equipment.
- Only use containers from the same production batch to coat self-contained or continuous surface areas.
- Before use, stir Beecko-SOL thoroughly with a power mixer. Take care not to incorporate air into the product.
- Adjust consistency of Beecko-SOL for substrate absorbency and product flow by adding BEECK Fixative mixture. Max 24 oz. per gallon or 20% in first coat, Max 12 oz. per gallon or 10% in finish coat. Low absorbent smooth surfaces typically require little to no thinning.
- Do not apply in wet conditions, if there is a risk of frost, on hot surfaces or in the blazing sun or in high winds.
- Application surface and drying temperature should be in the following range: +40°F to +86°F (+4°C to +30°C)
- Drying time: at least 12 hours per coat. Protect from rain or wet conditions for min. 24 hours. Do not view color before product is dry.
- Protect freshly coated areas from the rain; hang up scaffolding sheeting in front of the surface being worked on.
- Uniform product application is important to achieve a high-quality substrate appearance. This is most important on surfaces that receive glancing light or where surface appearance is critical. Avoid roller edges, ridges, overlapping and coating over

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previous coats that have already begun to dry. Cut-in edges smoothly and seamlessly, wet-on-wet, together with the main area.

### 2.4.2. Application

Apply with roller, brush or using an airless spraying method. Apply to continuous surface areas without any breaks or stops maintaining a wet edge. No overlapping or dry edges; apply in one continuous equal pass.

- **Application with roller or brush:**

- Rollers and brushes with a uniform coating finish are suitable.
- Avoid roller edges, ridges, overlapping and over coating areas that have already begun to dry, especially in scaffold working areas.
- Cut-in edges smoothly and seamlessly, wet-on-wet, together with the main area.
- When applied by brush, it is recommended to use a BEECK Mineral Paint Brush or similarly high quality tool to spread in any direction.
- Coats:
  - Primer coat: Thin product with no more than 24 oz/gal or 20 % with BEECK Fixative mixture to improve flow and to compensate for absorbency. On low absorbent surfaces no thinning is typically needed.
  - Intermediate and Topcoat: After at least 12 hours, un-thinned is recommended however in some cases it may be acceptable to thin up to 12 oz/gal or 10% with BEECK Fixative mixture. Low absorbent surfaces typically require little to no thinning.
  - Never thin with water

- **Spraying method (airless):**

- Nozzle: 0.79 mm / 0.031 inch
- Always sieve product before use (Beecko-Sol fine only), apply uniformly and as a thin coat.
- It is not recommended to spray Beecko-Sol Coarse.
- It is recommended to uniformly lay-off with a brush or roller on most surfaces.

### 2.5. Auxiliary products

- Etching Fluid for removing sinter layers on solid new plaster. Do not etch thin coat renders or ETICS/EIFS.
- BEECK HBP Silane 100, water-repellent primer for reducing moisture transport and salt efflorescence.
- BEECK Bonding Coat Coarse, slurry white primer (0.4 mm) with excellent adhesion properties.
- BEECK Bonding Coat Fine, smooth white primer with excellent adhesion properties.
- BEECK Quartz Filler, fiber reinforced, silicate-based, slurry priming coat for covering hairline cracks and minor structural defects. Apply over whole surface with the brush. BEECK Quartz Filler can also be mixed 1:1 with Beecko-SOL Fine as a coarse-grained primer and/or intermediate coat. Same color topcoat with Beecko-SOL Fine.
- Beecko-SOL Coarse, with texture grain (0.4 mm) for coarse-grained primer and intermediate coatings. Same color topcoat with Beecko-SOL Fine.
- BEECK Fixative or MBA Fixative, a primer, or pretreatment for highly absorbent or sanding substrates.

### 3. Application Rate and Container Sizes

The application rate (i.e. the quantity required for smooth, normally absorbent substrates) is approx. 300-350 sq.ft. / gallon (0.13 L/m<sup>2</sup>) per coat. Higher absorbent and higher textured substrates will increase consumption. Try out on a test area on site to determine substrate-related differences.

Container sizes: 1 Quart / 1 Gal / 3 Gal pails

### 4. Cleaning

Thoroughly clean equipment, tools and soiled clothing with water immediately after use.

### 5. Storage

Stored in cool and frost-free unopened containers, Beecko-SOL can be kept for at least 12 months

### 6. Hazard notes, safety instructions and disposal

Comply with the Safety Data Sheet. Safety Data Sheet available on request or at [BeeckMineralPaints.com](http://BeeckMineralPaints.com).

**Precautionary statements:** Keep out of reach of children. Do not get in eyes, on skin, or on clothing. Wear eye/face protection. The product is alkaline. Do not breathe vapors, spray-mist and dust. Carefully protect the area surrounding the surface to be coated, wash off splashes immediately with water. Dispose of product and containers in accordance with all official regulations.

Waste disposal number: 080112

### 7. Declaration

This technical information is offered as advice based on our knowledge and experience. All information is provided without guarantee. It does not release the user from their responsibility to check the product suitability and application for the specific substrate on which the product is to be used. All information is subject to change without notice as part of our ongoing product development. Non-system additives for tinting, thinning, etc. are not permitted. Check the colors before use. This information sheet automatically becomes invalid when a new edition is issued. The information in the current version of the Safety Data Sheets is binding for classification according to the Hazards identifications, disposal considerations, etc.