

1. Product Description

StenScreed® 402S HC is a polyurethane-based, solvent-free, waterborne, cement- and aggregate-filled, high-performance, fast-curing, self-leveling polymer concrete floor coating. In addition to all the superior properties of the standard version, **StenScreed® 402S HC** is highly conductive and has been developed specifically for explosive environments and for areas where electrostatically sensitive work is performed. **StenScreed® 402S HC** resists thermal shock, solvents, and chemical exposure; it offers good abrasion and impact resistance, does not support bacterial growth, and is easy to clean.

As a long-lasting, durable and decorative coating system, it is an ideal solution for areas such as electrostatic discharge (ESD) sensitive production facilities, explosive storage areas, clean rooms and electronics manufacturing facilities. Its impermeable formulation protects the coated floor from external effects and permits cleaning with pressurized hot or cold water and steam. Its water-based, solvent-free formulation makes it environmentally friendly.

2. Uses

StenScreed® 402S HC is suitable for all indoor areas with forklift, pallet jack and vehicle traffic. With its high conductivity, it has been developed specifically for electrostatic discharge (ESD) sensitive areas and explosive environments. It is particularly preferred in environments with frequent cleaning, thermal shock, solvents and corrosion-causing chemicals.

StenScreed® 402S HC can be used in all areas demanding this level of performance, including all chemical process areas, the wet and dry areas of food preparation facilities, thermal processing areas and cold rooms, beverage plants, water bottling plants, cafeterias, laboratories, medium and heavy-duty workplaces, storage and packing areas, maintenance and repair areas, production facilities and print shops. In addition, it shows superior performance in safety-critical areas where electrostatic charge buildup poses a risk, such as electronics manufacturing facilities, clean rooms, sensitive device production areas, explosive material warehouses, and chemical production and storage facilities.

3. Application

3.1. Surface Preparation

It is very important to prepare the surface properly before **StenScreed® 402S HC** application. For this purpose, if detailed information about the condition of the surface is provided, **Stenkim®** will recommend the most suitable surface preparation methods. The pull-off strength of surfaces to receive **StenScreed® 402S HC** must be at least 1.5 MPa.

Polyurethane-Based High-Conductivity Floor Coating

Highlights

- Good abrasion resistance
- Resistant to heavy traffic conditions
- High conductivity
- Resistant to many chemicals
- Thermal expansion compatible with concrete
- Resistance to thermal shock (+70 °C)
- High impact resistance
- Water-based formulation allows application on 7-day-old concrete
- Solvent-free
- Creates a non-slip surface for safe use
- Prevents bacterial growth and is suitable for hygienic areas
- Can follow concrete joints and does not require extra expansion joints
- High conductivity suits it to electrostatic-discharge (ESD)-sensitive areas and explosive environments
- Provides a safe working environment by preventing static electricity accumulation
- Conductive floor — for explosive and flammable (ATEX) atmospheres; grounding resistance < 500,000 Ω



It can be applied after the new concrete has been verified to have cured for at least 7 days and to have reached the required pull-off strength. There must be no water on the application surface. Any water seeping through the floor must first be stopped.

The concrete substrate to be coated must be cleaned of foreign matter, dust, dirt, grease and other impurities, irregularities and loose parts that may reduce adhesion. Dust and loose materials must be removed. The laitance that naturally forms on new or old concrete surfaces must preferably be removed with shot-blasting machines and/or suitable abrasive equipment. Holes, voids and cracks on the concrete surface must be repaired by filling with suitable primers or with **StenScreed® 402S HC** itself.

3.2. Primer

StenScreed® 402S HC can be applied without a primer depending on the quality of the concrete substrate. On dry concrete surfaces **StenAst® 2EP** and **StenAst® 2EP-F** are the preferred primers. If the moisture content of the concrete is above 5%, the waterborne epoxy-based primer **StenAst® 2EP MT** must be used.

If primer is used, sand must be broadcast. To provide conductivity, copper busbars are laid on the primer or concrete surface and a grounding connection is made. For surfaces primed with **StenAst® 2EP**, **StenAst® 2EP-F** or **StenAst® 2EP MT**, the time intervals specified in the user manual of the primer used must be observed.

3.3. Mixing and Application

The main steps of application are: homogenization of component A, mixing the components A and B, adding component C to the A and B mix, pouring **StenScreed® 402S HC** onto the floor, spreading with a trowel to the desired thickness and removing air with a spike roller. Pot life of **StenScreed® 402S HC** is short and affected by ambient temperature. All application steps (mixing, pouring, spreading and rolling) must be completed within approximately 12 to 15 minutes of starting to mix Components A and B.

The entire job must continue at a fast pace and as continuously as possible so that the next set can be joined to the previous one to conceal the junction; there should be no waiting between finishing one set's application and pouring the next. Therefore, teams for mixing, carrying and spreading must be formed, and these teams must work at speeds compatible with one another. Components must be mixed in the specified ratios.

Adding too little or too much of any component will impair the properties of the material. Water or solvent must never be added to the mixture for consistency adjustment. Component A of **StenScreed® 402S HC** is shaken for 10-30 seconds before its lid is opened. Components A and B are then transferred to a suitably sized mixing container and mixed for 30 seconds with a professional, variable-speed twin-shaft mortar mixer. While continuing to mix, component C is gradually added to the resin mixture without pouring all at once. When mixing component C, use a professional heavy-duty twin-blade mixer.

Material stuck to the bottom and sides of the mixing container is worked back into the mortar with a trowel so that the mortar becomes completely homogeneous. The duration of mixing depends on the starting temperature of the product. Mixing must continue until the mixture reaches a fluid consistency.

Under room conditions, the mixture takes 2-2.5 minutes to reach the target fluidity from the start of mixing. As the initial temperature drops, this time increases. The mixed **StenScreed® 402S HC**, having reached the target consistency, is poured onto the prepared substrate and spread evenly with a triangular notched trowel of appropriate size according to the desired thickness.

To avoid joint marks, make sure to join the freshly spread mortar before it begins to set. To help remove the air entrained in the material during the mixing process, pass a spiked roller over the **StenScreed® 402S HC** spread on



the surface. Spiked roller application must be done with a hard spiked roller within 2 minutes after the coating is spread on the surface.

All application steps must be completed within 12 to 15 minutes of the completion of mixing. As the ambient temperature rises, this period becomes even shorter.

3.4. Cleaning

The equipment used can be cleaned with **StenSolver CL** at the end of the job.

4. System Design

System Layers	Brand	Requirement	Dry Film Thickness	Tack-free Time
Surface conditioner	StenAst [®] S	Optional	2-5 µm	30 minutes
Selected primer	StenAst [®] 2EP StenAst [®] 2EP-F StenAst [®] 2EP-MT (moisture >5%)	Optional	300-500 µm	Variable
Sand	StenSilica 500 Mix	Required if primer is used	-	
Copper bus bar		Required		
Coating layer	StenScreed [®] 402S HC	Required	4-7 mm	24 hours
Protective layer	StenCoat [®] 2PU TOP FX StenCoat [®] 2PU TOP HD	Optional	0.1-0.2 mm	12-16 hours

5. Safety

Applicators and supervisors must read the Safety Data Sheet (SDS) carefully and follow the instructions provided. Emptied packages must be disposed of in compliance with relevant regulations and laws. The application must be carried out by skilled workers under the supervision of experts and the applicators must use all personal protective equipment required for the worksite and the task such as goggles, mask and gloves.

6. Storage

Storage temperature must be between 5 and 30 °C. Packages must not be exposed to direct sunlight. Frozen material cannot be reused. Under these conditions, the material will retain its properties in unopened containers for 12 months from the production date. The materials must be kept away from open fire and sources that may create fire hazard. Protect the product from freezing.

7. Disclaimer

This document is provided for general information and is based on **Stenkim**[®]'s laboratory data and field experience at the time of publication. **Stenkim**[®] reserves the right to revise this information without prior notice.



Stenkim® warrants that its products conform to the stated specifications on delivery. The buyer is responsible for determining the product's suitability for the intended purpose and for all conditions of transport, storage, application, and use. **Stenkim®** accepts no liability for results obtained under conditions outside its control. **Stenkim®**'s liability under this warranty is limited to replacement of non-conforming product and excludes any consequential or indirect damages.



8. Technical Data

Property	Method	Result
Base Polymer		Water-based Polyurethane
Density	EN ISO 2811-2	1.82 ± 0.02 g/cm ³
Application Thickness		min. 4 mm
Antistatic Behavior	EN 1081	Class I (10 ⁴ -10 ⁶ Ω)
Electrical Resistance (between electrodes, 90 cm)	IEC 61340-4-1	< 5 × 10 ⁵ Ω
Electrical Resistance (to ground)	IEC 61340-4-1	< 5 × 10 ⁵ Ω
Hardness	EN ISO 868	D85-90
Adhesion Strength	EN 1542 (on concrete)	3.57 MPa
Adhesion Strength	EN 13578 (on fresh concrete)	3.50 MPa
Capillary Water Absorption	EN 1062-3	0.093 kg/m ² h ^{1/2}
Abrasion Resistance	EN ISO 5470-1 Taber dry, H22, 1000 cycles, 1 kg	570 mg
Impact Resistance	EN ISO 6272-1	Class 2
Compressive Strength	EN 12190	> 50 MPa (Class 2)
Flexural Strength	EN 13892-2	17 MPa
Linear Thermal Expansion Coefficient	EN 1770	1.05 × 10 ⁻⁵ /°C
Linear Shrinkage During Cure	EN 12617-1	< 0.3%
Thermal Aging (70 °C)	EN 1062-11	Pass
Pot Life @20 °C	EN ISO 9514	10 minutes
Tack-free Time @20 °C		12 hours
Ready for Light Foot Traffic @20 °C		1 day
Time to Open to Heavy Traffic @20 °C		3 days



Color	Catalog	RAL 1001 – Beige / RAL 1006 – Maize Yellow / RAL 3009 – Oxide Red / RAL 6010 – Grass Green / RAL 7037 – Dusty Grey / RAL 7032 – Pebble Grey / RAL 7046 – Telegrey 2
Shelf Life		1 year
Packaging		18 kg sets

Stenkim[®] reserves the right to make changes to the values in this table at any time.

