



TopStone® Surface is a unique mixture of binder and filler (natural pebblestones).

13.04.2018 Version 1

Function:

- Surface treatment of new and old substrates

Possible applications:

Exterior

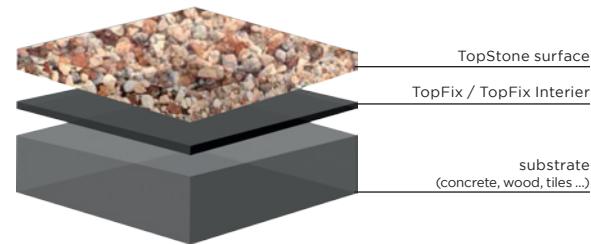
- Poolside, terraces, green roofs, gateways, balconies, loggias, walkways, driveways, stairs, accessories and decorations, garden design, drainage system, speed bumps, surface barriers, overhead garages, bike trails, parks, public swimming pools, bank reinforcements

Interior

- Corridors, garages, basements, entrances, lobbies, living rooms, bedrooms, bathrooms, stairs, accessories and decorations, saunas, poolside, industrial areas, exhibition spaces, terraces

Wall

- Laying of the vertical surfaces by means of the self-contained technological process TopStone **Wall** and **Stairs**, take a look at www.topstone.cz



Advantages:

- Does not contain nonylphenol or solvents, harmless after curing
- Installation (application) possible without % moisture restriction content of the substrate
- Does not react or mix with water
- Ideal viscosity (does not drip)

Properties:

Frost resistance	Slip resistance	Permeability	High resistance	Resistance to salts and chemical capillaries	No capillary action	Good thermal conductivity	Simple and fast implementation
Seamless surface	Long lifetime	Impact sound reduction	Combination with other surfaces	Simple and fast work	Easy formability	Environment compliance	Easy maintenance

Preparation data:

During application and setting, the **TopStone® surface** must not come into direct contact with water and chemicals (do not use in rain!). The substrate must also contain no water-soluble substances such as salts, solvents and the like. To heat the premises during use, do not use diesel or gas burners and the like that generate CO₂ and water vapor at the site of execution, which have a negative impact on the surface quality.

Preparation and application time	40 min at an outdoor temp.of 20°C EpoStone Clear at temp.of 20°C 30 min	At high temperatures	Fast curing
Recomm. temp. for installation	> 10°C (≤ + 30°C)	Applicability of the surface at 20°C	The next layer within 24 hours. The surface is hardened after 24 hours. Fully cured in 7 days
At low temperature	Slow curing		

Packaging:

The listed consumption of material can differ according to specific conditions and the specific application

Retail packaging	1.25kg binder + 25kg filler	app. 1.1 m at a thick. of 1.5cm (river pebb.)	app. 1m at a thick. of 1.5cm (marble chips)
Wholesale packaging	30kg binder + 600kg filler	app. 26.4 m at a thick. of 1.5cm (river pebb.)	app. 24 m at a thick. of 1.5cm (marble chips)
Wholesale packaging	560kg binder + 11200kg filler	app. 492 m at a thick. of 1.5cm (river pebb.)	app. 448 m at a thick. of 1.5cm (marble chips)

Storage:

Binder: At temperatures $> +12^{\circ}\text{C} < +25^{\circ}\text{C}$, in a dry place in the original packaging.

Filler: At undefined temperatures in the original packaging.

The warranty period, see the information on the packaging.

The procedure for installing the TopStone® Surface:

1. A thorough assessment of the substrate before installation (substrate, usually concrete, evaluate in terms of its age, consistency, moisture, insulation):

Fresh (young) concrete – 5 to 28 days after casting. It does not have the ideal moisture content up to 4% and the declared strength. It is necessary to prepare the substrate before laying by grinding and then vacuuming it. The substrate must be primed! The installation of the surface can then be made.

New concrete – 28 days to 12 months after casting. This concrete base has the strength parameters declared in the standard and the volumetric creep has already taken place. The substrate is not degraded or corroded. Even in this case, however, it is necessary to prepare the substrate by grinding and subsequent vacuuming it, eliminating so-called „cement milk“, which is emitted on the surface. Priming the substrate before installation is not required. The installation of the surface can then be made.

Old concrete – more than 1 year after casting. The gradual corrosion of the concrete has begun, resulting in lower surface strength and cohesion. The substrate must be prepared. Non-cohesive parts of the substrate must be removed by grinding and vacuuming them or by cleaning the substrate with pressurized water jet. The substrate must then be primed. Priming solidifies and increases the quality of the substrate. The installation of the surface can then be made..

Old concrete showing signs of slight crumbling – (compressive strength above 10 MPa, visible nicks with a sharp object). Necessary maintenance of the concrete form by priming (filling) the substrate with up to 1 kg/m² and binding the concrete substrate with a glass mat or gauze. In this situation, the TopStone® Surface can be installed 12-24 hours after preparing the substrate (depending on the ambient temperature). In this instance we recommend a 2cm thickness of TopStone® Surface.

Old concrete showing signs of crumbling – (compressive strength below 10 MPa, visible nicks with a blunt object). The substrate is falling apart throughout its layer and cannot be reclaimed. The installation of the surface cannot be performed!

Laying on an unpaved surface using the self-contained technology **TopStone Cell** and **TopStone Mesh**, see on the www.topstone.cz.

2. Preparation of the mixing area and the tools for installation:

Cover the mixing area with a folio sheet or carton in order to prevent possible contamination and spoilage of the surface with binder splatter.

Prepare steel trowels of several sizes, a digital scale, vessel (approximate volume of 5 liters or more) for mixing the resin with hardener, bucket, pail (about 50l and more) for mixing TopStone® Surface, 2m water level to check for flatness, stirrer (whisk) for the drill, drill (stirrer), separator – food wrap or lard, material for formwork (planed boards, wedges, dowels, screws, etc.), acetone, protective gloves, goggles, clothing (coveralls), cleaning cloths, roller and accessories, brush, broom, vacuum cleaner, wire brush, grinding wheel, and grinding machine for grinding the substrate.

3. Proper preparation of the substrate:

The removal of non-cohesive parts and opening of the structure of the substrate surface (grinding, shotblasting, milling, vacuuming, sweeping, etc.) - Repairing cracks in the surface - cleaning (vacuuming), trimming cracks, penetrating them.

TopFix, caulking – TopFiller. If a crack needs to be reinforced, a wire brush can be used and the crack clasped or banded using a fiberglass mat, then sealed with TopFiller grout.

Repairing holes in the surface – holes greater than 2cm can be filled before installing with the binder and filler mix itself prepared in accordance with section 12 below.

4. Priming:

See section 1 for the rules of using a primer depending on the quality of the substrate. For priming, use the penetratin on material TopFix, which is a part of the TopStone® system. Generally, non-porous substrates or those with minimum pores (ceramic tiles, vibrated concrete tiles, polished concrete, etc.) do not need to be primed; in this case TopStone® Surface is self-priming. Vertical surfaces should always be primed!! (In these cases, it is possible to use the binder from that part of the system that will be done on vertical surfaces).

5. Dilatation:

The working dilatation of the substrate or transitions of other types of substrates (concrete, tile, etc.) have to be expected in TopStone Surface, and so L-shaped strip molding (aluminum or stainless steel material, the height of the molding in accordance with the thickness of the surface) should be inserted. Attach the strip molding with a fast-acting construction adhesive like Mamut or TopFiller sealant, or with screws. We recommend grouting the working dilation with a polyurethane sealant.

6. Functional or waterproofing dilatation with a working purpose, in the substrate on the order of mm must be grouted with a polyurethane sealant and expansion molding used on the surface with required bridging (dilatation movement) made by reputed manufacturers or a waterproofed system of dilatation from reputable manufacturers can be installed.

7. Preparation of formwork, stop edges:

Any stop material to be removed after application, such as shuttering, formwork, stop panels, etc., must have separation before installation. For this purpose, it is advisable to use a foil or lard (installing vertical surfaces with TopStone Surface is managed with the separate procedure Stairs, available at www.topstone.cz).

8. Selecting the type of end for the surface:

Sharp edge – a sharp edge is possible in two ways. Spread the mix either to a planed board with separation and after it cures, remove the board, or use aluminum L-shaped strip molding. The strip molding must be attached to the edge using a fast-acting construction adhesive (e.g. Mamut) or TopFiller to the edge and the mix spread up to the molding.

Gradient – a sloping finish can be made by reducing the thickness of the compound and spreading it up to, e.g. a grassy surface. This way a smooth transition and rounded edge can be achieved. Edges can also be done with conventional concrete or a stone curb (the use of wood materials or plastic garden curbs is not suitable). Warning: Note that an aluminum strip is not suitable for application in rolling surfaces. Here a stainless steel strip should be used because it does not have the tendency to deform. In this case, we recommend not only gluing the strip, but also screwing it to the substrate.

9. The thickness of the surface:

The minimum coating thickness is 1cm. A thickness of 1cm can only be done for walkable areas indoors and outdoors provided that aggregate is used (river pebblestone 2-5mm, marble chips 2-4 mm and 4-7 mm).

The recommended thickness for walkable surfaces is 1.5 cm (applicable for all aggregates on offer (pebblestones and chips)).

The minimum thickness for rolling surfaces is 2cm (recommended aggregate (pebblestones and chips) 2-8 mm).

10. Pot life of the mix:

The processing time is 40 minutes at 20°C (EpoStone Clear: 30 minutes at 20°C), at a higher temperature we recommend to process the mixture within 20 minutes and avoid the processing of the mixture in the direct sun. The pot life is shortened and extended depending on the ambient temperature (The time of installation should be well planned and a small amount of mixture prepared and gradually increased according to need).

11. Time of installation:

It is necessary to carefully plan the the installation time (with reference in section 10 it is highly recommended to prepare a smaller amount of mix to be processed in the time scheduled for processing (30-40 min.).

12. Installation:

Mix the binder in a separate small plastic vessel with the help of a drill and a steel stirrer (about 3 minutes), namely the resin (component A) with the hardener (component B). The mixing ratios of the individual components are provided on the packaging, the weight must be used to make an accurate measurement.

The next preparation involves pouring 1/2 of the volume of the filler (aggregate) into a larger plastic vessel and pouring in roughly half of the measured and mixed binder (resin component A and hardener component B). Thoroughly mix it (about 2 minutes) using the drill and then pour in the second part of the filler (aggregate) and add the rest of the binder. Again, thoroughly mix the entire binder and filler compound. The total mixing time is about 5 minutes.

The surface quality depends on a thorough mix!

Evenly spread this mixture out on the prepared substrate. Compact and smooth the surface using a steel trowel cleaned with acetone. If any unevenness occurs on the surface and it is not consistent, immediately add some ready mix and smooth again. For topcoats greater than 2cm, the material must be continuously compacted.

Warning: Note that the compound must be immediately applied to the substrate after mixing. Failure to do so will result in the risk that, during the remix (after more than 5-10 minutes), a sharp exothermic reaction will spontaneously occur and degrade the compound!

If a larger surface is to be installed or it is necessary to work in multiple stages or days, it is possible to interrupt the installation and finish the surface with a sharp edge (see section 8) by extending the mixture to a planed board (provided with separation). The installation can be continued as necessary. A gap, however, has to be expected in the surface after removing the board.

Continuously checking the installed surface with a water level or laser is recommended to obtain the required evenness (this can be facilitated by creating targets and then making the surface even).

13. Finishing works:

After 24 hours but no later than 3 days after the installation and at a temperature of 20°C, gently dismantle the form-work material. If burrs appear in the binder on vertical surfaces, they can be cleaned off with a wire brush, sandpaper, or grinded with a grinding stone, etc.

14. Using a loading a new TopStone®-Surface:

A new TopStone Surface can be lightly loaded by walking 24 hours after the completion of installation at an ambient temperature of 20°C and is fully functional after 7 days at 20°C.

Testing with rolling weight, i.e. with a vehicle, is not recommended until 7 days after installation (at ambient temperatures below 20°C with correspondingly longer times). The failure to comply with this rule will lead to overloading and threaten to degrade the binder, which will then not have the required strength..

15. Important notice:

WARNING: The temperature during installation and throughout polymerization (7 days at 20°C) must not fall below 5°C – the polymerization-curing process could cease as a result!

WARNING: Do not load with water or chemicals for 48 hours after installation!

WARNING: Never scrape the mixed binder for adding to the filler from the mixing vessel. The reason for this is the possibility of „scraping“ only one component of the binder off the walls of the mixing vessel and this could lead to a possible defect in the surface.

16. Warranty period:

24 months for delivery, including installation of the surface by the company TOPSTONE or by a certified contractor (business partner). The expiration date of the material is given on the label of each package.

17. Warranty terms:

The warranty does not extend to defects resulting from improper or inappropriate use, mechanical damage, improper handling and care, as well as defects originating in hidden defects of base layers, tears in the substrate, a drop (cracking) in the structure (paved areas), or their parts, caused by force majeure or other reasons which the seller is not liable for. The warranty likewise does not cover normal wear and tear, slight discoloration caused by UV radiation or by using different lots of filler.

Technische Daten:

Basic characteristics	Degree	Klassen
Compressive strength	21.9 MPa	C 16
Tensile strength under movement	12.1 MPa	F 6
Shock resistance	60 Nm	IR 60
Adhesion	5.05 N/mm ²²	B 5,0
Reaction to fire	Bfl	
Antiskid (dry - wet)	Satisfies ($\geq 0,5$) in acc. ČSN 74 4505	

The mixing ratio of the binder to filler by weight is 1: 20 or according to the label on the packaging.

Maintenance and cleaning:

Exterior – Regular maintenance by mechanical means: broom, scraper with rubber handle, pressurized water up to 40°C, with steam. In winter, maintain the surface with a wooden or plastic rake with a rubber handle, cutter (do not use with chains), chemical maintenance and cleaning with common detergents, remove stubborn stains with petrol, acetone, etc. Salt or salt solutions can be used in the winter..

Interior – Maintenance can be best compared to full classic carpet cleaning, i.e. weekly vacuuming as needed, or by wet cleaning with a damp mop and once a year (or as needed) with a carpet cleaning machine or by steam. Stains caused by liquid spills are best cleaned using warm water and a brush, if necessary, a sponge. Immediately afterwards, suck away the water and repeat the cleaning method as necessary.

The manufacturer recommends renewal within a period of 2-5 years after realization (depending on surface load and surface wear). The consists of painting the surface with an epoxy renewal paint with consumption 0.3kg per m².

	TOPSTONE s.r.o. Družstevní 442, 753 01 Hranice CZ 13 EN 13813 SR-B _{FL} -S1 - ARO,5 - B5,0 - IR60
Reaction to fire:	B _{FL} -S1
Release of corrosive substances:	NPD
Permeability:	NPD
Abrasion resistance:	AR 0,5
Adhesion:	B 5,0
Impact resistance:	>IR 60
Sound insulation:	NPD
Sound absorption:	NPD
Thermal resistance:	NPD
Chemical resistance:	NPD
NPD - non-declared	

The information and data contained in this document is based on our best knowledge and experience. When using our products according to our recommended procedures on the materials for which these products are intended, there can be no harm or damage caused. The material, application techniques, and working and operating conditions are, however, outside our control and therefore our recommendations are only generally valid and cannot be used as the basis for liability.

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ISO 9001, ISO 14001

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