

Installation Recommendation SHIELDTAC® ricosys PU

1. Substrate

Prior to installation of the system, it is important to ensure that the substrate is properly prepared, clean, free from any imperfections and substances such as grease, oil and hydraulic fluid which could affect the long-term performance of the SHIELDTAC® ricosys PU. It is also important to ensure that each completed layer of the system is properly cured before installing the next layer.

In particular, DIN 18365 and the limits for evenness deviations according to DIN 18202 are relevant. As a guideline, a maximum deviation of approximately 3 mm per 1 m should be allowed for, which must be levelled out before starting.

In addition, the applicable guidelines for shooting ranges must be taken into account. The work must be carried out in such a way as to ensure that the facility can be used safely and for its intended purpose on a long-term basis.

Suitable substrates are, for example:

- Concrete
- Asphalt
- Screed



Suitable, solid substrate

2. System build-up

Layer	Product	Material consumption
Glue	SPORTEC® 700	0.70 kg/m ²
Base Layer	SHIELDTAC® ricotile	-
Pore Filler	SHIELDTAC® ricosys Pore Filler	1.30 kg/m ²
Optional Scratch Layer	SHIELDTAC® ricosys Protector	0.20 kg/m ²
Self-leveling	SHIELDTAC® ricosys Protector	2.60 kg/m ²
Top Coat	SHIELDTAC® ricosys Finisher	0.15 kg/m ²

3. Required tools for the installation

- ✓ self levelling height adjustable resin rake or notched trowel
- ✓ Straight edged trowel
- ✓ Notched trowel for SPORTEC® 700 adhesive
- ✓ Pressure roller
- ✓ Disk sander or handheld sander (sanding paper K 120)
- ✓ Vacuum cleaner
- ✓ Radiator paint brush.
- ✓ Mixer with adjustable RPM and at least a 900 Watt motor.
- ✓ Electrical extension coil.
- ✓ Pliers to open tins.
- ✓ 10 cm polyester fibre rollers + holder
- ✓ 50 cm long haired rollers + (weighted) holder
- ✓ Carpet knife with straight and hooked knife blades.
- ✓ Cleaning cloths
- ✓ Tool cleaner
- ✓ Gloves

As the SHIELDTAC® ricosys PU is a multi-layer system, it is important that after each layer has been completed, the installation technicians thoroughly clean and prepare all items of equipment prior to the application of the next layer of the system.

4. Short installation manual

4.1 Shooting tiles

- The SHIELDTAC® ricotile must be fully bonded to the prepared substrate using a suitable **SPORTEC® 700** PU glue.
- Material consumption approx. 0.7 kg/m²
- The tiles must be interlocked using the integrated connector pins and rolled with a suitable pressure roller to ensure full contact with the adhesive.

4.2 SHIELDTAC® ricosys Pore Filler (Pore filler)

- The SHIELDTAC® ricotile must be closed with SHIELDTAC® ricosys Pore Filler, using a straight-edged trowel.
- SHIELDTAC® ricosys Pore Filler is a 2-component material, consisting of a Resin and a Hardener, which must be suitably mixed prior to installation.
- Material consumption approx. 1.3 kg/m²
- The application time is about 20-25 minutes at 20 °C.
- SHIELDTAC® ricosys Pore Filler must be recoated after 16 hours and within 48 hours at 20 °C.

4.3 SHIELDTAC® ricosys Protector (Optional Scratch Layer)

- The SHIELDTAC® ricosys Pore Filler can be coated with a “scratch layer” of SHIELDTAC® ricosys Protector, using a squeegee rubber resin blade or straight trowel.
- SHIELDTAC® ricosys Protector is a 2-component material, consisting of a Resin and a Hardener, which must be suitably mixed prior to installation.
- Material consumption approx. 0.2 kg/m²
- The application time is about 15-20 minutes at 20 °C.
- The Scratch Layer must be recoated after 16 hours and within 48 hours at 20 °C.

4.4 SHIELDTAC® ricosys Protector (Self-levelling)

- The SHIELDTAC® ricosys Pore Filler must be coated with the SHIELDTAC® ricosys Protector, self levelling height adjustable resin rake or notched trowel.
- SHIELDTAC® ricosys Protector is a 2-component material, consisting of a Resin and a Hardener, which must be suitably mixed prior to installation.

- Material consumption approx. 2.6 kg/m²
- The application time is about 15-20 minutes at 20 °C.
- SHIELDTAC® ricosys Protector must be recoated after 16 hours and within 48 hours at 20 °C.

4.5 SHIELDTAC® ricosys Finisher (Top Coat)

- The SHIELDTAC® ricosys Protector must be coated with the SHIELDTAC® ricosys Finisher using a long-haired roller.
- SHIELDTAC® ricosys Finisher is a 2-component material, consisting of a Resin and a Hardener, which must be suitably mixed prior to installation.
- Material consumption approx. 0.15 kg/m²
- The application time is about 45 minutes at 20 °C.
- If necessary, SHIELDTAC® ricosys Finisher must be recoated after 16 hours and within 48 hours at 20 °C.
- Once complete. The floor is walkable after 16 hours.

5. Installation of SHIELDTAC® ricosys PU

5.1. Before each step

- Prepare all needed tools before work starts
- Ensure that electricity is available and tested.
- Prepare a clean work area with a mixing station before starting.
- Place all materials and tools in the working area.

5.2. Installation of SHIELDTAC® ricotile

For the gluing of tiles, material consumption should be approx. 700 g/m² although this depends strongly on the roughness of the substrate.

Mixing ratio components:

25 kg SPORTEC® 700 A+B (21.25 kg A and 3.75 kg B)

Application method

5.2.1.

Place a starting line using masking tape or a chalk line across the width of the room.

5.2.2.

Measure out approximately 50 m² of area where the tiles will be laid and mark this with chalk or masking tape.

Doing this will make visual where to end the spreading of each tin of SPORTEC® 700.

5.2.3.

Place the first row of tiles against the starting line in a way that the first tile gets close up against the wall (leaving a 2cm joint).

5.2.4.

Organize enough material of SPORTEC® 700 for the whole area.

5.2.5.

Open all tins and keep them well organized for mixing.

5.2.6.

Add the B-component to the A-component and mix A and B thoroughly for about 2 minutes till the mixture is homogeneous.

5.2.7.

Pour the SPORTEC® 700 out of the tin and spread it out adjacent to the starting line using a notched trowel. Spread in a width that is a little wider than the width of the tiles, say 5-10 cm extra. On the side where the tape is, don't go beyond the tape to prevent the SPORTEC® 700 from lying on the floor too long, losing its adhesive properties.

The first line of tiles is used as orientation for the second row. Gluing starts with the second row. The first row of tiles can be glued at a later stage, once the second row is fixed in place.

5.2.8.

Immediately after spreading the SPORTEC® 700, place the tiles into the fresh and wet (!) SPORTEC® 700. In case of the first tiles; align them just along the starting line. In case of the perimeters: keep away from the walls (or vertical objects) about 2 centimeters.

These gaps can be filled with the next layer (SHIELDTAC® rcosys Pore Filler).

In this way you make sure that the sides will be fully closed and watertight after the complete installation of the floor.

In case of using tape: remove the tape after installing the Tiles.

5.2.9.

Spread fresh SPORTEC® 700 according to step **5.2.7.** but now next to the first laid row of tiles. Then proceed with step **5.2.8.** Please note that the tiles must be installed compactly ensuring they are flush and without gaps. Ideally, enough installers are present so you can spread the SPORTEC® 700 and lay the tiles at the same time.

At any time, make sure the SPORTEC® 700 is still fresh and wet before laying the tiles into the SPORTEC® 700!

5.2.10.

Approximately 15 - 30 minutes after laying the bed of glue, the pressure roller should be rolled over the installed tiles to assure proper adhesion to the SPORTEC® 700.

The SPORTEC® 700 requires this time to react sufficiently and develop good adhesion to the tiles. Don't wait longer than 45 minutes to do this.

The tiles should be rolled at every spot. Seams and perimeters preferably twice.

Never turn the pressure roller while not moving! This may damage the tile and can cause it to move from its place.

5.3. Installation of SHIELDTAC® ricosys Pore Filler

Material consumption:

SHIELDTAC® ricosys Pore Filler: approx. 1,300 grams/m²

Mixing ratio components:

25 kg SHIELDTAC® ricosys Pore Filler A+B (20 kg A and 5 kg B)

Application method

Preparation

See "Before each step" above (Section 5.1)

5.3.1.

Organize enough material of SHIELDTAC® ricosys Pore Filler for the whole area.

5.3.2.

Check tiles for loose spots, uncovered areas or dirt. Repair all defects before applying the SHIELDTAC® ricosys Pore Filler.

5.3.3.

Open all tins and keep them well organized for mixing.

5.3.4.

First mix the A-component of the SHIELDTAC® ricosys Pore Filler properly for about 1 minute before adding the B-component. Mix A and B thoroughly for about 2 minutes till the mixture is homogeneous.

5.3.5.

Pour a workable amount of the freshly mixed SHIELDTAC® ricosys Pore Filler onto the tiles. Use the straight trowel to apply the SHIELDTAC® ricosys Pore Filler. Do this on the length of the tiles and keep an overlap of approximately 5 cm onto the adjacent mat. The seams between the tiles will be touched twice this way, making sure they are completely filled with SHIELDTAC® ricosys Pore Filler. Also, take extra care for the gaps that are left between the tiles and the walls as well as for other vertical obstructions.

NOTE: In case a seam is too wide, a Joint Filler can be used to fill the seam instead of SHIELDTAC® ricosys Pore Filler, to avoid this part of the floor being visibly different or too hard when finished.

5.3.6.

Mix new material when required, according to step 5.3.4., and try to have the new material ready when the old material is almost finished to ensure continual installation. Keep in mind the time needed for mixing in relation to the installation speed.

5.3.7.

Pour the new material on the floor and install this according to step 5.3.5. Repeat this till the whole surface has been covered with SHIELDTAC® ricosys Pore Filler and no gaps or pinholes are left.

5.4. Installation of SHIELDTAC® ricosys Protector (as Scratch Layer)

This layer is optional but recommended.

Purpose of this layer: make sure there are no pinholes left in the SHIELDTAC® ricosys Pore Filler, before installing the self-leveling layer of the SHIELDTAC® ricosys Protector.

Material consumption:

SHIELDTAC® ricosys Protector: approx. 200 grams/m²

Mixing ratio components:

25 kg SHIELDTAC® ricosys Protector A+B (19 kg A and 6 kg B)

Please note: *Please check if this optional scratch layer has been included in your order. When yes, check the exact quantity required for the whole surface area (considering approx.. 200g/m²). Only mix the necessary amount ensuring that the specified mixing ratio is followed. The remaining SHIELDTAC® ricosys Protector should not be mixed in advance and must be set aside for the following self-levelling layer.*

Application method

Preparation

See "Before each step" above (Section 5.1)

5.4.1.

Organize enough material of SHIELDTAC® ricosys Protector for the whole area.

5.4.2.

Open all tins and keep them well organized for mixing.

5.4.3.

First mix the A-component of the SHIELDTAC® ricosys Protector properly for about 1 minute before adding the B-component. Mix A and B thoroughly for about 2 minutes till the mixture is homogeneous.

5.4.4.

Pour a workable amount of the freshly mixed SHIELDTAC® ricosys Protector onto the SHIELDTAC® ricosys Pore Filler layer.

5.4.5.

Spread the mixture using a straight trowel.

5.4.6.

Mix new material when required, according to step 5.4.3. and try to have the new material ready when the old material is almost finished to ensure continual installation. Keep in mind the time needed for mixing in relation to the installation speed.

5.4.7.

Pour the new material on the floor on the edge of the already installed material. Push the freshly poured material approximately 30 cm back into the previously applied material so no pouring lines will remain visible.

Repeat this till the whole surface has been covered with SHIELDTAC® ricosys Protector.

5.5. Installation of SHIELDTAC® ricosys Protector (Self-Levelling)**Material consumption:**

SHIELDTAC® ricosys Protector: approx. 2,600 grams/m²

Mixing ratio components:

25 kg SHIELDTAC® ricosys Protector A+B (19 kg A and 6 kg B)

Application method

Preparation

See "Before each step" above (Section 5.1)

5.5.1.

Set the height of the self levelling height adjustable resin rake using the adjusting plate.

5.5.2.

Organize enough material of SHIELDTAC® ricosys Protector for the whole area.

5.5.3.

Open all tins and keep them well organized for mixing.

5.5.4.

First mix the A-component of the SHIELDTAC® ricosys Protector properly for about 1 minute before adding the B-component. Mix A and B thoroughly for about 2 minutes till the mixture is homogeneous.

5.5.5.

Pour the mixed material onto the surface in a straight line from one side to another.

5.5.6.

Spread the mixture using the self levelling height adjustable resin rake or toothed trowel. When using the self levelling height adjustable resin rake; be sure it is used

correctly so that it remains at a 90 degree angle to the floor. If the angle alters, the coverage will vary and will always be less than the required 2.6 kg/m².

5.5.7.

Mix new material when required, according to step 5.5.4., and try to have the new material ready when the old material is almost finished to ensure continual installation. Keep in mind the time needed for mixing in relation to the installation speed.

5.5.8.

Pour the new material on the floor on the edge of the already installed material. Push the freshly poured material approximately 30 cm back into the previously applied material so no pouring lines will remain visible.

Repeat this till the whole surface has been covered with SHIELDTAC® ricosys Protector.

5.6. Installation of SHIELDTAC® ricosys Finisher**Material consumption:**

SHIELDTAC® ricosys Finisher: approx. 150 grams/m²

Mixing ratio components:

10 kg SHIELDTAC® ricosys Finisher A+B (8.25 kg A and 1.75 kg B)

Application method

Preparation

See "Before each step" above (Section 5.1)

5.6.1.

When necessary in case of contaminations in the SHIELDTAC® ricosys Protector, please sand the floor or the specific spots where the contaminations are present. Afterwards, vacuum the floor thoroughly.

5.6.2.

To ensure that the SHIELDTAC® ricosys Finisher is installed to a good standard, it is important to prepare the rollers by removing any loose or single fibers from every roller. This is best achieved by applying masking tape over the entire surface of each roller and removing it after a few minutes. This will remove all of the loose fibers.

5.6.3.

(This step only needs to be followed in case two colors will be applied to highlight a certain spot. In case of only 1 color, please proceed with Step 5.6.4.)

Measure and mark the required area using 25 mm masking tape. **Ensure that the tape is positioned exactly along the intended boundary of the coloured area.** Press the tape down firmly using a tape roller.

5.6.4.

In case of 2 colors: Organize enough material of SHIELDTAC® ricosys Finisher of one color for the area first to be done.

In case of 1 color: Organize enough material of SHIELDTAC® ricosys Finisher for the whole area.

5.6.5.

Open all tins and keep them well organized for mixing.

5.6.6.

First mix the A-component of the SHIELDTAC® ricosys Finisher properly for about 1 minute before adding the B-component. Mix A and B thoroughly for about 2 minutes till the mixture is homogeneous.

5.6.7.

Pour the mixed material onto the surface in a straight line from one side to another over the width of the floor. Spread the material slightly with the 50 cm roller, by going over the material across the width of the floor ensuring that there is not too much material in one place. Whilst still wet, spread out and install the material parallel to the already coated area using the 50 cm long haired roller. After spreading the material with the 50 cm roller, a second technician must roll this section again with a 50 cm roller, keeping an overlap with the previously installed, adjacent material of approximately 5-10 cm. Keep in mind that the lanes remain the same workable length.

5.6.8.

Mix new material when required, according to step **5.6.6.**, and try to have the new material ready when the old material is almost finished to ensure continual installation. Keep in mind the time needed for mixing in relation to the installation speed.

5.6.9.

Repeat Step **5.6.7.** until the whole area is coated and, when applying two coating colours, remove the masking tape before the finisher starts to cure. Do not leave the tape since this can cause problems the next day!

5.6.10.

Keep a small amount of PU SHIELDTAC® ricosys Finisher to use for coating the edges of the area. Use a radiator paint brush and a 10 cm polyester fiber roller to do this. It is important not to prepare too much of these edges as the coating will start drying. The aim is to ensure that the coating is installed on a “wet to wet” basis to give the best-looking finish so make sure that the edges are coated before reaching that area with the 50 cm rollers.

5.6.11. (only in case of 2 colors):

Apply the second color only the next day.

Place the 25 mm masking tape on the already coated part in a way that the side of the tape is equal to the side of the coated part. Make sure the tape adheres properly using the tape roller.

Repeat from Step **5.6.4.** to install the second color.

Take some measures to prevent people walking on the floor when it is still wet.

During installation, avoid high temperatures in combination with low relative humidity because drying times will be too short which will have a negative effect on the system, aesthetically and technically. Also avoid a high relative humidity because drying times will be too slow which can have a negative effect on the strength of the coating and the adhesion.

The permissible relative humidity during application is:

- **SHIELDTAC® ricosys Pore Filler: 30-80%**
- **SHIELDTAC® ricosys Protector: 30-70%**
- **SHIELDTAC® ricosys Finisher: 30-80%**

It is important to check the material consumption rate before and during installation to avoid having a shortage of material towards the end of the installation and to avoid that the SHIELDTAC® ricosys Finisher is installed too thickly as the coating may crack after curing.

Material properties

- A characteristic material odour may be noticeable. It will decrease over time and can be reduced by regular ventilation.

Claims:

- Inspect the goods before installation
- If any visible defects are identified, stop installation immediately
- Report any claims immediately and before installation
- If the defect is visible before installation, claims can only be accepted for uninstalled products
- State the production batch
- Document all defects with sufficient evidence (e.g. pictures)
- Report any transport damage to the carrier immediately upon delivery

DISCLAIMER:

These recommendations for applications and installation are based on our extensive experience and on current technological practice. Our liability and responsibility in the event of damages shall be limited to the extent defined in our General Terms and Conditions of Business, regardless of the above recommendations or of any statements made or advice given by our sales representatives or applications engineering staff. Ensure that sufficient self-testing is carried out in advance.