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Fast-track product systems for when time is short



The increasing rationalization of construction programmes, which is aimed at minimizing unproductive time on site and ensuring that scheduled opening dates are met, imposes ever tighter deadlines on today's applicators.

Where **waiting times** are dictated by the physical processes undergone by the applied materials, it is vital – particularly with fast-track or tightly scheduled projects – to make full use of systems that allow efficient and reliable execution, with minimum delay to the progress of the works.

Such schemes may, for instance, require overnight refurbishment with unobstructed access to the public on the following morning, the completion of entire flooring systems (including screed) within two to four days or the availability of areas for the following trades after only a few hours.

Thanks to its intensive research in the field of concrete and cement technology, Sopro Bauchemie GmbH is able to draw on in-depth know-how and expertise in these areas. Capitalizing on its accumulated knowledge, the company has developed product ranges that excel by their high early strength and short waiting times before flooring installation and use.

Rapid-set screed systems

The lengthy drying times required for traditional screeds are frequently at odds with tight construction programmes and deadlines.

Depending on their coat thickness, standard cementitious screeds need between four and ten weeks to achieve the prescribed 2% CM residual moisture content.

The drying process may be accelerated through the use of specially designed binder mixes suitable for the production of cement screeds.

Sopro Rapidur® B1 turbo/Sopro Rapidur® B3/Sopro Rapidur® B5 rapid-set screed binders and Sopro Rapidur® FE 678 self-levelling screed (ready-to-use dry mix) can be used to produce screeds that allow early flooring installation while otherwise exhibiting all the properties of and delivering the same performance as standard cement screeds.

A ceramic covering may be installed 6 to 12 hours (Sopro Rapidur® B1 turbo), approx. 24 hours (Sopro Rapidur® FE 678), 24 to 48 hours (Sopro Rapidur® B3) or approx. 3 to 5 days (Sopro Rapidur® B5) after screed laying.

A wide variety of cements and admixtures are used in rapid-set screed systems. A broad distinction is drawn between two types of system:

1. Extra-rapid-set binders
(e.g. Sopro Rapidur® **B1 turbo/B3**)
= Ready for tiling after a few hours
(approx. 12–48 hours).

2. Rapid-set binders
(e.g. Sopro Rapidur® **B5**)
= Ready for tiling after a few days
(approx. 3–5 days)

Large-scale application



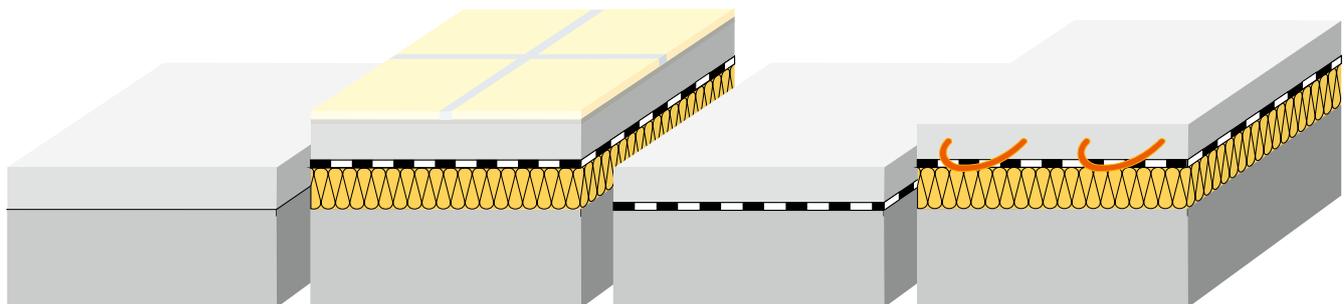
Sopro Rapidur® B1 turbo rapid-set screed binder	Sopro Rapidur® B3 rapid-set screed binder	Sopro Rapidur® B5 rapid-set screed binder	Sopro Rapidur® FE 678 self-levelling screed
Ready for tiling after 6–12 hours	Ready for tiling after 24–48 hours	Ready for tiling after approx. 3–5 days	Ready for tiling after approx. 24 hours

Sites subject to spatial constraints



Sopro Rapidur® M1 rapid-set screed mortar	Sopro Rapidur® M5 rapid-set screed mortar	Sopro Rapidur® FE 678 self-levelling screed
Ready for tiling after approx. 4 hours	Ready for tiling after approx. 24 hours	Ready for tiling after approx. 24 hours
Aggregate already added, thereby significantly simplifying site logistics.		

* Mixing ratio 1 : 4
(25 kg Rapidur® B1 turbo or Rapidur® B3 : 100 kg 0–8 mm screed sand to DIN EN 12620).
** Mixing ratio 1 : 5
(25 kg Rapidur® B5 : 125 kg 0–8 mm screed sand to DIN EN 12620)



Bonded screed*** **Floating screed** **Unbonded screed** **Heated screed**

*** Bonding layer necessary. See Section 7 on screeds.

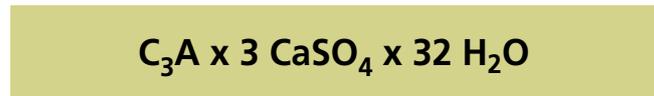
Rapid-set screed systems

Standard screed mortars are prepared by the addition of a specified quantity of mixing water. The finished mix has a smooth, workable, earth-moist consistency.

To improve the workability of the screed mortar, the water quantity present in the mix always exceeds the amount needed for hydration of the cement. The on-site addition of plasticizing or accelerating admixtures generally fails to solve the problem of surplus water as this does not involve any chemical bonding. Despite the rapid setting process, the surplus water has to dry off over a period of many days.

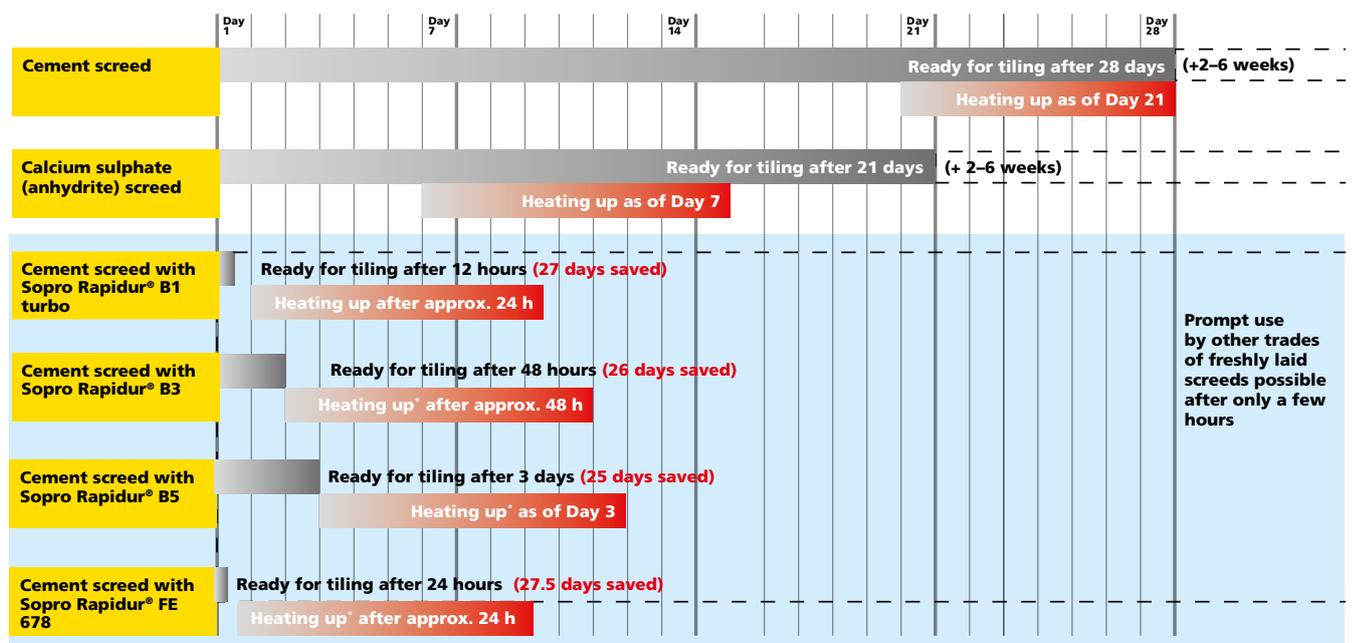
This means that long drying times are still needed for standard site-mixed cement screeds.

Extra-rapid-set screed binders are chemically formulated in such a way as to bind the surplus water in the system by means of controlled crystallization (ettringite crystals), thereby making the cement screed ready for tiling within only a few hours.



In addition to various additives, **rapid-set screed binders** contain a blend of ultra-finely ground cements with a total surface area many times that of standard cements. This speeds up the binder reaction and resulting set, while also increasing the amount of water needed for hydration of the cement. Surplus water is essentially either bound by the additives or evaporates within the first hours and days after screed laying.

Comparison with times required for normal-setting screeds:



* Heating up in accordance with standard: 3 days, 25°C, 4 days max. flow temperature, end

Integral waterproofing, tile laying and grouting systems

Waterproofing, tile laying and grouting under time pressure, subject to requirement for early walkability and resumption of operations

Top on the client's list of priorities on fast-track refurbishment schemes – alongside high-class workmanship – is the limitation of operational disruption or closure of the facility (e.g. shop, catering kitchen, restaurant etc.) to as short a period as possible.

The aim is, of course, to minimize downtimes due to refurbishment work and associated loss of turnover.

Coverings are frequently refurbished at weekends or overnight – subject to the requirement that flooring be loadable only a few hours after completion.

Waterproofing:



Sopro TDS 823

Flexible, rapid-set, two-component, cementitious sealing slurry used to produce rapid-crack-bridging waterproof coatings. Two-component system ensures weather-independent drying. Maximum flexibility thanks to high-performance polymer dispersion. Very low consumption rate due to high dry coat thickness.

- Rapid-set (approx. 2 hours per coat)
- Withstands 3 bar water pressure after only 6 hours
- Crack-bridging after only 6 hours
- Particularly recommended during cold season
- Working life: 30–40 minutes
- For walls and floors, indoors and outdoors
- Water-vapour-permeable
- For brush, roller, trowel and spray application

Tile laying:



Sopro VF HF 420

Extra-rapid-set, early-high-strength, flexible, one-component, cementitious floating-bed tile adhesive.

- For floors, indoors and outdoors
- Working life: 30–45 minutes
- Walkable/groutable: after approx. 2 hours
- Fully loadable: after approx. 5 hours



Sopro VF 419

Silver-grey, rapid-set, cementitious thin-, medium- and floating-bed tile adhesive with high crystalline water binding capacity.

- For floors, indoors and outdoors
- Working life: 30–45 minutes
- Walkable/groutable: after approx. 3 hours

Integral waterproofing, tile laying and grouting systems

Grouting:



Sopro DF 10*

Strong, flexible, rapid-set, cementitious tile grout for grouting all types of ceramic and natural stone covering to produce brilliantly coloured, lime-film-free finish.

- For 1–10 mm joint widths
- Walkable: after approx. 2 hours
- Fully loadable: after approx. 12 hours



Sopro FL plus*

Strong, flexible, frost-resistant, rapid-set, cementitious tile grout for wide and narrow joints in wall and floor coverings, indoors and outdoors, to produce brilliantly coloured, lime-film-free finish. For smooth, easy grouting of stoneware, fully vitrified stoneware, natural and cast stone coverings, ceramic split tiles and clinker floor tiles.

- For 2–20 mm joint widths
- For walls and floors, indoors and outdoors
- First-rate joint-filling properties and washability (removability)



Sopro TFb

High-strength, rapid-set, trass-bearing, cementitious tile grout for extra-heavy-duty applications. High mechanical strength and abrasion resistance through use of Sopro Mikrodur® microcement.

- For 3–30 mm joint widths
- Walkable: after approx. 1.5 hours
- Fully loadable: after approx. 6 hours

* Treated article under EU Biocides Regulation. Please observe current version of product information, available at www.sopro.com

Integral waterproofing, tile laying and grouting systems

System I
Fast-track system

Product recommendations

Screed laying:

Sopro
Rapidur® B1 turboSopro
Rapidur® M1**Sopro Rapidur® B1 turbo,
Sopro Rapidur® M1**Ready for tiling after approx. 12 or 4 hours
respectively

Ready for heating up after approx. 24 hours

Waterproofing:



Sopro TDS 823

Sopro TDS 823

Drying time: approx. 2 hours per coat

**Note: After 2 days permanently
resistant to hydrostatic pressure
(swimming pool construction)**

Laying/bonding:



Sopro VF HF 420

Sopro VF HF 420

Walkable after approx. 2 hours

Grouting:

Sopro TFb
(heavy-duty areas)Sopro DF 10
(normal-duty areas)**Sopro TFb**

Fully loadable after approx. 6 hours

Sopro DF 10

Fully loadable after approx. 12 hours

Construction period = 1–2 days

* Mixing ratio 1 : 4 (25 kg Rapidur® B1 turbo : 100 kg 0–8 mm screed sand to DIN EN 12 620).

Integral waterproofing, tile laying and grouting systems

System II
Fast-track system

Product recommendations

Screed laying:

Sopro Rapidur®
FE 678**Sopro Rapidur® FE 678**

Ready for tiling after approx. 24 hours
Ready for heating up after approx. 24 hours

Waterproofing:



Sopro TDS 823

Sopro TDS 823

Drying time: approx. 2 hours per coat

Note: After 2 days permanently resistant to hydrostatic pressure (swimming pool construction)

Laying/bonding:



Sopro VF 419



Sopro VF HF 420

Sopro VF 419

Walkable after approx. 3 hours

Sopro VF HF 420

Walkable after approx. 2 hours

Grouting:

Sopro TFb
(heavy-duty areas)Sopro DF 10
(normal-duty areas)**Sopro TFb**

Fully loadable after approx. 6 hours

Sopro DF 10

Fully loadable after approx. 12 hours

Construction period = 2–3 days

Integral waterproofing, tile laying and grouting systems

System III
Fast-track system

Product recommendations

Screed laying:



Sopro Rapidur® B3

Sopro Rapidur® B3
Ready for tiling after approx. 48 hours
Ready for heating up after approx. 48 hours

Waterproofing:



Sopro TDS 823

Sopro TDS 823
Drying time: approx. 2 hours per coat

Note: After 2 days permanently resistant to hydrostatic pressure (swimming pool construction)

Laying/bonding:



Sopro VF HF 420



Sopro VF 419



Sopro's No.1 rapid-set

Sopro VF HF 420, Sopro VF 419, Sopro's No.1 rapid-set
Walkable after approx. 2–3 hours

Grouting:



Sopro Tfb
(heavy-duty areas)



Sopro DF 10
(normal-duty areas)



Sopro FL plus

Sopro Tfb
Fully loadable after approx. 6 hours

Sopro DF 10
Fully loadable after approx. 12 hours

Sopro FL plus
Fully loadable after approx. 12 hours

Construction period = 3–4 days

* Mixing ratio 1 : 4 (25 kg Rapidur® B3 : 100 kg 0–8 mm screed sand to DIN EN 12620).

Integral waterproofing, tile laying and grouting systems

System IV
Fast-track system

Product recommendations

Screed laying:



Sopro Rapidur® B5



Sopro Rapidur® M5

**Sopro Rapidur® B5,
Sopro Rapidur® M5**Ready for tiling after
3 days or 24 hours
respectivelyReady for heating up
after approx. 3 days

Waterproofing:

Note: After 2 days permanently
resistant to hydrostatic pressure
(swimming pool construction)



Sopro TDS 823

Sopro TDS 823Drying time:
approx. 2 hours
per coat

Laying/bonding:



Sopro VF HF 420



Sopro VF 419

Sopro's No.1
rapid-set**Sopro VF HF 420,
Sopro VF 419,
Sopro's No.1
rapid-set**Walkable after
approx. 2–3 hours

Grouting:

Sopro Tfb
(heavy-duty areas)

Sopro DF 10



Sopro FL plus

Sopro TfbFully loadable after
approx. 6 hours**Sopro DF 10**Fully loadable after
approx. 12 hours**Sopro FL plus**Fully loadable after
approx. 12 hours

Construction period = 6–7 days

* Mixing ratio 1 : 5 (25 kg Rapidur® B5 : 25 kg 0–8 mm screed sand to DIN EN 12620).