



Sopro FF 450

Flexible tile adhesive



Cementitious flexible tile adhesive for installation of ceramic wall/floor coverings and discoloration-resistant natural stone tiles. Suitable for heated wall and floor constructions. Low-chromate to Regulation (EC) No 1907/2006, Annex XVII.

- Complies with German Flexmortar guidelines (lozenge marking) and class C2 TE S1 requirements to DIN EN 12004
- Good workability
- High sag resistance due to fibre reinforcement
- Extended open time
- High coverage
- Deformability ≥ 2.5 mm
- EMICODE system of GEV (German Association for Control of Emissions in Products for Flooring Installation): EC1^{PLUS} R ("very-low-emission-plus") rating
- DGNB (German Sustainable Building Council): Top quality level 4, Line 8¹⁾
- For indoor and outdoor use

Use

With earthenware, stoneware and fully vitrified stoneware tiles, clinker floor tiles, mosaic, discoloration-resistant natural stone units, cast stone units. In residential, commercial and industrial facilities, damp and wet spaces, swimming pools, process water containers, operating theatres, escape routes, on facades, balconies and patios.

Suitable substrates

Concrete and lightweight concrete, min. 3 months old; cement screeds; calcium sulphate (anhydrite and self-levelling anhydrite) screeds; mastic asphalt screeds (indoors); board subfloors; heated floor constructions (cement and calcium sulphate screeds); strong existing ceramic, natural stone, terrazzo or cast stone coverings; paperless gypsum, gypsum plasterboard and gypsum fibreboard panels; flush-jointed masonry (no composite masonry); renders made from masonry cement; cement render; cement/lime render; gypsum plaster; rigid foam board; waterproof membranes using Sopro FDF flexible sealing compound, Sopro DSF 523 one-component flexible sealing slurry, Sopro DSF 623 one-component flexible rapid-set sealing slurry, Sopro DSF 423 two-component flexible sealing slurry or Sopro TDS 823 two-component turbo sealing slurry.

Mixing ratio

10.0–11.0 ltr water : 25 kg Sopro FF 450
2.0–2.2 ltr water : 5 kg Sopro FF 450

Coat thickness

Max. 5 mm in compacted adhesive bed

Maturing time

3–5 minutes

Working life

Approx. 4 hours; stiffened mortar shall not be retempered by addition of water or fresh mortar to restore workability.

Open time

Approx. 30 minutes

Walkable/groutable

After approx. 12 hours or after setting of adhesive; take measures to spread loads over floor.

Loadable

After approx. 3 days; in commercial facilities after approx. 14 days, in areas subject to high wet exposure after approx. 7 days, for underwater applications after approx. 21 days, in conjunction with wall and floor heating after approx. 14 days.

Application temperature

Between +5°C and max. +30°C; use of a rapid-set Sopro thin-bed adhesive is recommended for external areas during cold season

Coverage

Approx. 1.1 kg/m² per mm coat thickness

Shelf life

Approx. 12 months, subject to storage on pallet in dry conditions in original unopened containers

Packaging

25 kg bag, 5 kg bag

¹⁾ Based on DGNB (German Sustainable Building Council) criterion "ENV1.2 Local Environmental Impact" (version 2015).

Properties

Excellent contact adhesion, high sag resistance and high water retentivity, resistant to water and freeze-thaw cycles, very smooth workability, particularly high coverage, extended open time

Substrate preparation

Substrate shall be clean, solid, strong, dimensionally stable and free from any adhesion-impairing substances. Fill any existing cracks in screed with structurally bonding Sopro GH 564 casting resin. Level out any gross irregularities using Sopro RAM 3 454 renovation and levelling mortar, Sopro RS 462 repair filler or Sopro AMT 468 levelling mortar with trass; for floors, use Sopro FS 15 550 plus floor-levelling compound or Sopro FAS 551 fibre-reinforced self-levelling filler. Cement screeds shall be 28 days old and dry. Screeds incorporating Sopro Rapidur® B1 binder are ready to receive tiles after only approx. 12 hours. Calcium sulphate (anhydrite and self-levelling anhydrite) screeds shall exhibit a moisture content $\leq 0.5\%$ CM and be adequately ground, vacuum-cleaned and primed. Mastic asphalt screeds shall be blinded with sand. Cement and calcium sulphate screeds incorporating heating elements shall be heated up to ensure adequate drying out prior to flooring installation: required moisture content for cement screeds $\leq 2.0\%$ CM, for calcium sulphate screeds $\leq 0.3\%$ CM. Gypsum plasterwork shall be dry, single-coat and shall not be felt-floated or smoothed. All relevant standards, guidelines and recommendations shall apply; workmanship shall comply with good practice.

Priming

Sopro GD 749 primer: Cement screeds, calcium sulphate (anhydrite and self-levelling anhydrite) screeds to receive tiles of size not exceeding 0.2 m^2 , paperless gypsum wall panels, gypsum plaster-board/joints and filler, gypsum fibreboard, gypsum plaster, high- or variable-suction (interior) aerated concrete, lime/cement render, renders made from masonry cement, flush-jointed masonry

Sopro HPS 673 bonding primer: Smooth and closed-pore substrates, e.g. existing tile, terrazzo, natural and cast stone coverings, adhesive residue from PVC flooring or carpeting. Oriented strand board and metal substrates (indoors)

Sopro MGR 637 multi-purpose primer/Sopro EPG 522 epoxy primer: Calcium sulphate (anhydrite and self-levelling anhydrite) screeds to receive tiles of size exceeding 0.2 m^2

Application

Fill clean container with 10.0–11.0 ltr water (2.0–2.2 ltr water), add 25 kg (5 kg) Sopro FF 450 and mix intensively to workable, lump-free consistency. After 3–5 minutes maturing time, remix thoroughly. Apply contact layer with finishing trowel, then apply combed bed with suitable notched trowel (tool angle 45° – 60°). Apply only as much adhesive as can be covered by tiles during open time (30 minutes). Press tiles firmly into adhesive bed, position and align. Rake out joints prior to hardening and wash down covering.

Specified times

Apply for normal temperature range of $+23^\circ\text{C}$ and 50% relative humidity; higher temperatures shorten and lower temperatures lengthen these times.

Tools/tool cleaning

Mixing attachment, notched trowel with suitable serration (tooth size up to 12 mm); wash tools with water immediately after use.

Disposal

Waste treatment methods: Recover, if possible. Send to authorised disposal plants or for incineration under controlled conditions. In so doing, comply with the local and national regulations currently in force. 91/156/EEC, 91/689/EEC, 94/62/EC and subsequent amendments. Disposal of hardened product (EC waste code) : 17 01 01. Disposal of not hardened product (EC waste code) : 17 01 01. The suggested European waste code is just based on the composition of the product. According to the specific process or application field a different waste code may be necessary.

Test certificates

Technische Universität München:

- C2 TE S1 to DIN EN 12004
- National test certificate (abP) under PG-AIV (Criteria for Award of National Test Certificates for Waterproof Membranes Used in Conjunction with Tile Coverings) for use with Sopro FDF flexible sealing compound, Sopro DSF 523 one-component flexible sealing slurry, Sopro DSF 623 one-component flexible rapid-set sealing slurry, Sopro DSF 423 two-component flexible sealing slurry, Sopro TDS 823 two-component turbo sealing slurry, Sopro GD 749 primer and other Sopro components
- Test report: Sopro FF 450 flexible tile adhesive, in conjunction with Sopro DSF 523 one-component flexible sealing slurry, Sopro DSF 623 one-component flexible rapid-set sealing slurry, Sopro DSF 423 two-component flexible sealing slurry, Sopro TDS 823 two-component turbo sealing slurry and Sopro GD 749 primer, meets requirements to DIN EN 14 891, including those for tensile adhesion strength after storage in chlorinated water

SFV e.V. institute for wall/floor coverings, Großburgwedel:

- National test certificate (abP) based on system test under PG-AIV (Criteria for Award of National Test Certificates for Waterproof Membranes Used in Conjunction with Tile Coverings) for sheet membranes: combinations featuring Sopro AEB 640, Sopro AEB 641, Sopro AEB 642/643, Sopro AEB 644/645, Sopro AEB 112/129–133, Sopro DWF 089 with Sopro FF 450 as tile adhesive and Sopro RMK 818, Sopro MKS 819 or Sopro TDS 823 as adhesive and sealing product at laps

Kiwa GmbH Polymer Institut:

- National test certificate (abP) under PG-AIV (Criteria for Award of National Test Certificates for Waterproof Membranes Used in Conjunction with Tile Coverings) for use with Sopro PU-FD 570/571 surface sealant for walls/floors

MPA Dresden (Materials Test Institute Dresden):

- Reaction to fire class A1/A1fl

Licence

EMICODE system of GEV (German Association for Control of Emissions in Products for Flooring Installation): EC1^{PLUS} R ("very-low-emission-plus") rating

Labelling in accordance with Regulation (EC) No 1272/2008 (CLP)
GHS05, GHS07

Signal word: Danger

Contains Portland cement. Contains complex mixture of calcium and magnesium silicates and aluminates. Exhibits strong alkaline reaction upon contact with moisture/water; protection required for skin and eyes. All standard precautions for the handling of construction materials/chemicals shall be taken.



Hazard statements: H315 Causes skin irritation. H318 Causes serious eye damage. H335 May cause respiratory irritation.

Precautionary statements: P102 Keep out of reach of children. P261 Avoid breathing dust. P280 Wear protective gloves/protective clothing/eye protection/face protection. P302+P352 IF ON SKIN: Wash with plenty of water and soap. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310 Immediately call a POISON CENTER or doctor. P332+P313 If skin irritation occurs: Get medical advice/attention.

GISCODE (German hazardous substances classification): ZP 1 · Low-chromate to Regulation (EC) No 1907/2006, Annex XVII.

Safety precautions

CE marking

 1211 0767	 Sopro Sopro Bauchemie GmbH Biebricher Straße 74 – 65203 Wiesbaden (Germany) www.sopro.com
04 CPR-DE3/0450.4.eng EN 12004 Sopro FF 450 Improved deformable cementitious adhesive with reduced slip and extended open time for internal and external ceramic tile installations on walls and floors.	
Reaction to fire	Class A1/A1fl
Bond strength as: Initial tensile adhesion strength	≥ 1,0 N/mm ²
Durability for: Tensile adhesion strength after heat ageing Tensile adhesion strength after water immersion Tensile adhesion strength after freeze-thaw cycles	≥ 1,0 N/mm ² ≥ 1,0 N/mm ² ≥ 1,0 N/mm ²
Release of dangerous substances	see SDS

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FOR MORE INFORMATION CONTACT: **Smet Building Products Ltd**

93A Belfast Road | Newry | BT34 1QH | Northern Ireland

T: +44 (0) 28 3026 6833 | F: +44 (0) 28 3026 7619

E: info@smetbuildingproducts.com

www.smetbuildingproducts.com or www.smet.ie



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