

Order-No.
420

Sopro VF HF 420

VarioFlex® high-strength flexible tile adhesive



Extra-rapid-set, early-high-strength, flexible, cementitious floating-bed tile adhesive, meeting C2 EF requirements to DIN EN 12004. Ideal for fast-track or tightly scheduled schemes. For trouble-free laying of dishing/curling-prone resin-bonded tiles, large-format units, cast stone units, earthenware, stoneware and fully vitrified stoneware tiles. For laying dark-coloured, deformation-sensitive natural stone units. Suitable for use in conjunction with floor heating and waterproof membranes. High reliability through full rear-face wetting and contact adhesion plus high crystalline water binding capacity.

- For floors, indoors and outdoors
- C2: tensile adhesion strength $\geq 1.0 \text{ N/mm}^2$
- E: extended open time ≥ 30 minutes
- F: early tensile adhesion strength $\geq 0.5 \text{ N/mm}^2$ after 6 hours
- Sopro VF HF 420 achieves 0.5 N/mm^2 after only 90 minutes; 1.0 N/mm^2 after only 3 hours
- Working life: 30 – 45 minutes
- Walkable and groutable: after approx. 2 hours
- Fully loadable: after approx. 5 hours
- Low-chromate to Regulation (EC) No 1907/2006, Annex XVII
- DGNB (German Sustainable Building Council): Top quality level 4, Line 8²⁾

Use

For dishing-prone resin-bonded tiles²⁾, cast stone and terrazzo tiles, earthenware, stoneware and fully vitrified stoneware tiles, mosaic, terracotta, discoloration-resistant natural stone units in marble, granite etc.

Also suitable as bonding and contact layer in conjunction with thick-bed method, e.g. for rapid-set mortars incorporating Sopro Rapidur® B1 turbo binder.

In commercial and industrial facilities, hospitals, public buildings, airports, railway stations etc.

Suitable substrates

Concrete, min. 3 months old; calcium sulphate screeds; mastic asphalt screeds (indoors); board subfloors; cement screeds; heated floor constructions (cement and calcium sulphate screeds); strong existing ceramic, natural stone, terrazzo or cast stone coverings; timber substrates (in conjunction with Sopro FDP 558 tile insulation board); waterproof membranes using Sopro FDF flexible sealing compound, Sopro DSF 523 one-component/Sopro DSF 623 one-component rapid-set/Sopro DSF 423 two-component flexible sealing slurry, Sopro TDS 823 two-component turbo sealing slurry, Sopro ZR 618 reactive waterproof membrane and Sopro PU-FD surface sealant.

Mixing ratio

5.5–6.0 ltr water : 25 kg Sopro VF HF 420

Coat thickness

Max. 5 mm in compacted adhesive bed

Maturing time

3–5 minutes

Working life

30–45 minutes; 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. 2 hours or after setting of adhesive; take measures to spread loads over floor.

Loadable

After approx. 5 hours; in commercial facilities after approx. 2 days, in areas subject to high wet exposure after approx. 3 days, for underwater applications after approx. 10 days, in conjunction with floor heating after approx. 14 days

Application temperature

Between +5 °C and max. +25 °C

Coverage

Approx. 1.4 kg/m² per mm coat thickness

¹⁾ See TKB (German Technical Committee for Construction Adhesives) data sheet 14 "Rapid-hardening cementitious screeds and cementitious screeds with screed admixtures" issued on 11 August 2015 by Industrieverband Klebstoffe e.V. (German Adhesives Industry Association).

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

Shelf life

Approx. 6 months, subject to storage on pallet in dry conditions in original unopened containers

Packaging

25 kg bag

Properties

Rapid crystalline water binding and very early strengths achieved by Sopro VF HF 420 make it ideal for rapid, dishing-free laying of resin-bonded²⁾, natural stone and cast stone units. As a floating-bed adhesive, Sopro VF HF 420 ensures full rear-face wetting of tiles, exceptionally high frost resistance for covering system and uniform load transmission to substrate.

For trouble-free laying of large-format fully vitrified stoneware tiles up to 1.0 m² in size on calcium sulphate screeds pretreated with undiluted Sopro GD 749 primer. For larger formats, calcium sulphate screeds shall be pretreated with Sopro MGR 637 multi-purpose primer or Sopro EPG 522 epoxy primer. Sopro VF HF 420 offers good workability and achieves a high coverage. Ideal for rapid tiling on tightly scheduled projects.

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 in floor using Sopro FS 15 550 floor-levelling compound, Sopro FAS 551 fibre-reinforced self-levelling filler or Sopro VF HF 420 extended with 30 % Sopro QS 511 coarse silica sand. Screeds incorporating Sopro Rapidur[®] B1 turbo rapid-set binder are ready for tiling after only 12 hours. Calcium sulphate screeds shall exhibit a moisture content $\leq 0.5\%$ CM and be adequately ground, vacuum-cleaned and primed. Timber substrates shall be covered with Sopro FDP 558 tile insulation board prior to tiling. Cement screeds shall be 28 days old and exhibit a moisture content $< 2.0\%$ CM. Prior to flooring installation, screeds incorporating heating elements shall be heated up and allowed to cool in accordance with relevant procedures and standards: required moisture content for cement screeds $\leq 2.0\%$ CM, for calcium sulphate screeds $\leq 0.3\%$ CM. All relevant standards, guidelines and recommendations shall apply; workmanship shall comply with good practice.

Primer

Sopro GD 749 primer: Board subfloors; high- or variable-suction substrates; substrates with friable surfaces; calcium sulphate screeds for tile formats up to 1.0 m².

Sopro SG 602 primer-sealer: Cement render, lime/cement render, gypsum plaster, homogeneous, flush-jointed masonry (no composite masonry), concrete, aerated concrete, paperless gypsum panels, gypsum plasterboard and gypsum fibreboard, cement screeds, calcium sulphate screeds (for laying tiles up to max. 1 m²). For ceramic tiles, natural stone and timber substrates insensitive to moisture. For large-format tiles (of size $> 0.36\text{ m}^2$), use of rapid-set, rapid-drying bedding adhesives is recommended in conjunction with Sopro SG 602.

Sopro HPS 673 bonding primer: Timber substrates; adhesive residue from PVC flooring or carpeting; mastic asphalt screeds without sand blinding; existing tile, terrazzo, natural stone and cast stone coverings.

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 1.0 m².

Application

Fill clean container with 5.5–6.0 ltr water, add 25 kg Sopro VF HF 420 and mix mechanically using mixing attachment to 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 (approx. 30 minutes). Press tiles firmly into adhesive bed, position and align. Rake out joints prior to hardening and wash down covering.

Buttering/floating method shall be adopted for large-format tiles ($\geq 50 \times 50\text{ cm}$).

Through addition of 30 % Sopro QS 511 coarse silica sand, Sopro VF HF 420 is also suitable for 5–20 mm coat thicknesses.

Specified times

Apply for normal temperature range of +23°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.

The information, and, in particular, the recommendations relating to the application and end-use of SMET distributed products, are given in good faith based on SMET's current knowledge and experience of the products when properly stored, handled and applied under normal conditions in accordance with the manufacturer's recommendations. In practice, the differences in materials, substrates and actual site conditions are such that no warranty in respect of merchantability or of fitness for a particular purpose, nor any liability arising out of any legal relationship whatsoever, can be inferred either from this information, or from any written recommendations, or from any other advice offered. The user of the product must test the product's suitability for the intended application and purpose. The manufacturer reserves the right to change the properties of its products. The proprietary rights of third parties must be observed. All orders are accepted subject to our current terms of sale and delivery. Users must always refer to the most recent issue of the local Product Data Sheet for the product concerned, copies of which will be supplied on request.

Test certificates, test reports and licences

C2 EF to DIN EN 12004

Test report:

Tensile adhesion strength of 1 N/mm² at +23 °C after only 3 hours, at +10 °C after only 6 hours, at +5 °C after only 10 hours

PG-AIV-F (Criteria for Award of National Test Certificates for Liquid-Applied Waterproof Membranes Used in Conjunction with Tile Coverings):

National test certificate (abP) for composite waterproofing systems with membrane and tile finish, for structural waterproofing in conjunction with DSF 523, DSF RS 623, TDS 823, ZR 618, FDF 525/527, PU-FD 570/571 and other Sopro components.

PG-AIV-B (Criteria for Award of National Test Certificates for Waterproof Sheet Membranes Used in Conjunction with Tile Coverings):

National test certificate (abP) for composite waterproofing systems with membrane and tile finish, for structural waterproofing in conjunction with AEB HD 958 and other Sopro components.

DIN EN 14891:

VF HF 420 in conjunction with DSF 523, TDS 823 and GD 749 meets requirements, including those for tensile adhesion strength after storage in chlorinated water

DIN EN 14891:

VF HF 420 in conjunction with PU-FD 571 and EPG 522 meets requirements, including those for tensile adhesion strength after storage in chlorinated water

GEV-EMICODE:

EC1^{PLUS} ("very-low-emission-plus") rating

Safety precautions

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

GHS05

Signal word: Danger

Contains Portland cement, Cr (VI) < 2 ppm. 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: H318 Causes serious eye damage.

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

Waste treatment methods

The generation of waste should be avoided or minimized wherever possible. Recover if possible.

A waste code (EWC) according to European List of Waste (LoW) cannot be specified, due to dependence on the usage. Contact and send to an authorized waste disposal service.

Methods of disposal:

Disposal of this product, solutions, packaging and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Dispose of surplus and nonrecyclable products via a licensed waste disposal contractor.

Do not dispose of waste into sewers.

Hazardous waste: Yes

Disposal considerations:

Do not allow to enter drains or watercourses.

Dispose of product according to all federal, state and local applicable regulations.

If this product is mixed with other wastes, the original waste product code may no longer apply and the appropriate code should be assigned. Dispose of containers contaminated by the product in accordance with local or national legal provisions. For further information, contact your local waste authority.

Special precautions: This material and its container must be disposed of in a safe way. Care should be taken when handling untreated empty containers.

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Empty containers or liners may retain some product residues. Do not re-use empty containers.

Disposal

CE marking

 1211	 Sopro Bauchemie GmbH Biebricher Straße 74 – 65203 Wiesbaden (Germany) www.sopro.com
	04 CPR-DE3/0420.1.eng EN 12 004:2007 + A1:2012 Sopro VF HF 420 Fast setting, improved, cementitious adhesive for tiling internal and external floors
Reaction to fire	Class E
Bond strength as:	
Early tensile adhesion strength	≥ 0.5 N/mm ²
Initial tensile adhesion strength	≥ 1.0 N/mm ²
Durability for:	
Tensile adhesion strength after water immersion	≥ 1.0 N/mm ²
Tensile adhesion strength after heat ageing	≥ 1.0 N/mm ²
Tensile adhesion strength after freeze/thaw cycles	≥ 1.0 N/mm ²
Release of dangerous substances	see SDS

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