flex one

Enhanced flexible standard setting S1 wall & floor tile adhesive

DESCRIPTION

Standard-setting, highly polymer-modified, thixotropic, fluid with shape memory, water/frost-resistant cementitious tile adhesive for walls and floors.

Use for

- Fixing ceramics, porcelain and vitrified tiles, mosaics, most natural stones excluding moisture sensitive/translucent stone), terrazzo, rigid foam insulating materials and brick slips in dry or wet interior and exterior environments.
- Uncalibrated Stone (Floors only)
- Recommended for large format wall tiles, areas of total immersion in water e.g. swimming pools and showers.
- Installations subject to limited movement and vibration.
- Heated screeds.

Restrictions: NOT suitable for

- Metal or painted floor surfaces#, Glass/metal tiles with water-sensitive coating on back, plywood walls and tiling to existing glazed tiles*.

Key

Further applications possible by adding BAL ADMIX AD1 to provide flexibility, increased adhesion and reduce water permeability. This enables use onto glazed surfaces.

#Use BAL FLEXBONE 2EASY

USAGE: Bed Thickness / Time at 20°C

Bed Thickness ^	Open Time**	Pot Life	Setting Time**
2-15mm	>45mins	150 mins	6-8 hours

*** Times will be extended in colder temperatures, when fixing to impervious backgrounds or when fixing tiles of low porosity.*
^ Use minimum 3mm thickness for floor tiling.
^ typical application 2-8mm, use up to 15mm in isolated areas only.

PRODUCT INFORMATION

Composition: Standard-setting highly polymer-modified cement-based powder with gel rheology (maintains structure).

Colours: White.

Type/Classification: Exceeds BS EN 12004 **C2TES1** – Cementitious Adhesive with Improved / Additional Characteristics, Extended Open Time, Non-Slip Properties and Deformable.

Pack sizes: 20kg

Key Features:

- Extended open time of up to 45 minutes.
- Extended working time up to 2½ hours, to avoid waste.
- Full wettability; thixotropic and fluid with shape memory
- Suitability for use up to 15mm thick (in limited areas).
- Highly polymer modified with S1 deformability.
- Use on walls and floors.

Grout After: 6-8 hours (at 20°C)

COVERAGE

Area	Trowel	Coverage ^^
Dry Wall	4mm Notched	0.6m²/kg
Dry Wall	6mm Notched	0.5m²/kg
Wet Wall	6mm Notched (solid bed)	0.4m²/kg
Exteriors / Floors	10mm Notched (solid bed)	0.26m²/kg

^^ May vary dependent on nature and flatness of surface, and on trowel used.

TEMPERATURE RESISTANCE***

-30°C to 100°C

*** Cured adhesive.*

SURFACE PREPARATION

General

Ensure surfaces to be tiled are flat, clean, dry, sound, free from contamination and all barriers to adhesion.
Surface regularity:
Surface Regularity is defined as the deviation in height of the surface of a flooring layer over short distances in a local area. In simpler terms, it is the 'flatness' or 'measure of unevenness' of the screeded surface.

Class	MAXIMUM PERMISSABLE DEVIATION - 2M STRAIGHT EDGE (MM)	APPLICATION
SR1	3mm	Recommended for direct fixing of tiles and slabs with a tile adhesive

N.B. When using larger format tiles, it is essential that the substrate is as level as possible, i.e. better than SR1, as this will avoid excessive bedding out of adhesive.

In wet areas: waterproof background with BAL TANK-IT, BAL WATERPROOF 1C

If tiling externally, provide protection against inclement weather during fixing and grouting and for as long as possible afterwards. It is recommended that all direct to earth sub floors include a DPM or, if required a surface DPM can be applied prior to tiling. *See BAL DPM TECHNICAL DATA SHEET for further details.*

SUITABLE SURFACES include:

Plaster (finish coat only)

Must be at least 4 weeks old before tiling. Ensure that the plaster is free from dust, laitance, and friable material.
If *plaster is shiny or polished*, brush thoroughly with a stiff bristled brush.
The plaster must always be primed with 2 coats of:
– BAL PRIME APD (undiluted) or
– BAL BOND SBR (diluted 1:2 by volume with clean cold water)
Second coat applied at 90° to the first.
Allow each coat of primer to dry.
Maximum 20kg/m² weight restriction for tiling onto plaster
Note: The use of plaster is not recommended in commercial wet rooms or domestic power showers.

Plasterboard

Ensure boards are dry, securely fixed and rigid and suitable thickness used.
Where plasterboard is dot and dabbed (300mm centres and around the perimeter), leave to dry before tiling.
Maximum 32kg/m² weight restriction for tiling onto plasterboard. NOTE: For higher weight tolerances use BAL BOARD (max. 100kg/m²)
Note: The use of plasterboard is not recommended in commercial wet rooms or domestic power showers.

BACKGROUNDS / BASES

Brick(13)/Concrete (2)	✓	Plaster (3)(5)	✓
Rendering (3)	✓	Plasterboard (5)	✓
BAL BOARD/Tile Backer/Fibre Cement Boards (3)(4)(5)(9)(11)	✓	Unglazed Ceramic Tiles / Hard Natural Stone (4)(11)	✓
Cement:Sand Screed (3)(4)(11)	✓	Lightweight Blockwork (13)	✓
Anhydrite/Calcium Sulfate Screeds (4)(8)(11)	✓	Overlaid Timber Floors – 15mm min. (3)(4)(5)(6)(11)	✓
Mastic Asphalt (4)(7)(11)	✓	Timber Floors (3)(4)(10)	✓
Vinyl Tiles/Sheets (4)(11)	✓	Glazed Tiles (4)(11)(12) ✓	✗

USAGE & SERVICE CONDITIONS

Walls	✓	Floor	✓
Interior	✓	External	✓
Dry	✓	Wet Areas	✓
Worktops (1)	✓	Showers (a)(5)	✓
Swimming Pools (b)(c)	✓	Hydrotherapy Pools (b)(c)(1)	✓
Underfloor Heating Screeds (3)(4)(9)(10)	✓	Limited Movement/Vibration (4)(11)	✓

(1) Tiles must be grouted using BAL ABSOLUTE GROUT.
(2) Provided the surface is sufficiently flat.
(3) Prime with BAL PRIME APD. (See BAL TECHNICAL DATA SHEET for more information).
(4) Do not prime when using BAL FLEXBONE 2Easy uncoupling mat.
(5) In wet conditions tank with BAL TANK-IT or BAL WATERPROOF 1C.
(6) Seal back face and edges with undiluted BAL BOND SBR.
(7) Flooring grade only).
(8) Prime with BAL PRIME APD, first coat 1:1 with water by volume, second coat undiluted 90° to the first coat.
(9) Check suitability for the intended purpose with the manufacturer or check BAL TECHNICAL DATA SHEETS on any BAL Products.
(10) When using BAL uncoupling systems (See Technical Data Sheets).
(11) May use BAL RAPID-MAT/BAL FLEXBONE VAried or BAL FLEXBONE 2Easy uncoupling mats onto background.
(12) When modified with BAL ADMIX AD1, Pre-diluted 1:3 with water by volume.
(13) Apply a cement: sand render e.g. BAL QUICKSET RENDER or a suitable tile backing board prior to tiling.

Note:
(a) Do not use shower for at least 2 weeks after completion of grouting – Latest BS 5385:Part 4.
(b) Do not fill pool for at least 3 weeks after completion of grouting- Latest BS 5385:Part 4. BAL FLEX ONE is sulphate resistant.
(C)Must be onto a watertight background.

Lightweight blockwork/walling

Allow new block mortar to dry for minimum 6 weeks before rendering (such as BAL QUICKSET CEMENT)/plastering or BAL BOARD for internal areas *(see BAL TECHNICAL DATA SHEET on BAL BOARD for further information).*

Dense concrete/blockwork walling

Allow new block mortar to dry for minimum 6 weeks before rendering (such as BAL QUICKSET RENDER) /plastering or BAL BOARD for internal areas (see BAL TECHNICAL DATA SHEET on BAL BOARD for further information). If direct fixing tiles, wall must be smooth-faced and sufficiently flat (SR1).

Concrete; cement:sand screeds and rendering

Before tiling, ensure that the substrate is flat (SR1), free from efflorescence, laitance, dirt, polished concrete, and other loose materials. Remove using suitable mechanical methods (see BAL TECHNICAL DATA SHEET on BAL BOND SBR or BAL PRIME APD for priming information). NOTE: Priming and sanding is not required when using BAL FLEXBONE 2Easy.
Allow the following minimum drying times:
– Concrete/concrete block walls/clay brickwork: 6 weeks
– Cement:sand screed: 3 weeks*
– Cement:sand rendering: 2 weeks (3 weeks for swimming pools)

 If BAL RAPID-MAT/ BAL FLEXBONE VAried/ BAL FLEXBONE 2Easy is used, this may be fixed when the screed is sufficiently strong enough to receive foot traffic. NOTE: BAL FLEXBONE 2Easy is not fixed down just laid.

BAL QUICKSET CEMENT:sand screeds and rendering

– Bonded screeds: 4 hours**
– Unbonded/floating screeds: 48 hours
– Rendering (bonded): 4 hours**

BAL BOND SBR SLURRY

**1 part sand to 1 part BAL QUICKSET CEMENT by weight, mixed with appropriate amount of BAL BOND SBR pre-diluted 1:1 with clean cold water by volume to achieve desired consistency.

BAL QUICKSET RENDER: 2 hours

Asphalt (Flooring Grade Only)

Must be clean, in sound condition (without brittleness, softening. etc.) and have adequate cohesive strength, a natural float finish and laid on a firm rigid base.
Ensure that surface is sufficiently regular to suit bedding depths of adhesive.
Clean thoroughly to remove surface dirt using warm water and a suitable detergent. Remove all detergent residues with clean water.

Fibre reinforced cement boards and lightweight tile backer boards

Install boards to latest BS 5385 – Part 3 i.e. moisture-resistant boards such as BAL BOARD and screwed to seasoned timber or suitable proprietary framework at maximum 300mm centres vertically and horizontally or as per the board manufacturer's recommendations *(see BAL TECHNICAL DATA SHEET on BAL BOARD for further information).*

Anhydrite/calcium sulfate and hemi-hydrate screed

Allow the screed to dry out in accordance with manufacturer's instruction example: moisture contact below 0.5% w/w or 75% RH (Relative Humidity). Mechanically abrade the top surface to remove weak/dusty surface layer(s) as per the screed manufacturer's recommendations. Remove all dust and loose material e.g. by vacuum etc. before priming with 2 coats of (second coat applied at 90° to the first):
– BAL PRIME APD diluted 1:1 with clean water and second coat undiluted or
– BAL BOND SBR diluted 1:4 with clean water and second coat diluted 1:2 with clean water.
Allow each coat of primer to dry.
NOTE: For further information on other backgrounds and preparation, contact BAL TECHNICAL ADVISORY AND SPECIFICATION SERVICE.

Using onto BAL FLEXBONE 2Easy over Anhydrite/calcium sulfate and hemi-hydrate screed

Allow the screed to dry in accordance with manufacture's instruction example: moisture contact below 1.5% w/w. No need to mechanically remove the top surface. The floor must be flat to SR1 and the only preparation is to sweep the floor. No priming required. *NOTE: For further information contact BAL TECHNICAL ADVISORY AND SPECIFICATION SERVICE and see BAL TECHNICAL DATA SHEET on BAL FLEXBONE 2Easy for further guidance.*

Overlaid timber floors (min. 15mm)

Ensure timber floor (i) is sufficiently rigid and stable to receive tiles; (ii) can carry the additional static and dynamic load without excessive deflection; and (iii) has adequate ventilation under the timber.
Overlay existing timber floor with e.g. a suitable water-resistant grade e.g. marine plywood, min. 15mm thick, screwed (not nailed) at 300mm centres.
Seal timber surface on the underside and edges with undiluted BAL BOND SBR. Allow to dry. *NOTE: Timber is not a suitable base for floor tiling in wet, frequently damp, or high humidity areas unless appropriate precautions are taken (see Latest BS 5385-3).*

Tongued and grooved floorboards with BAL RAPID-MAT/BAL FLEXBONE VAried or BAL FLEXBONE 2Easy

Ensure boards are flat (SR1) dry, rigid, and securely fixed (screwed to joints at 300mm centres, including any cross-noggins, if necessary). Sand (abrade) surface and ensure any surface coatings removed, e.g. varnish, lacquers, etc.
Before priming with 2 coats of (second coat applied at 90° to the first):
– BAL PRIME APD (undiluted) or
– BAL BOND SBR (diluted 1:2 by volume with clean cold water clean water)
Allow each coat of primer to dry. NOTE: Priming/sanding is not required when using BAL FLEXBONE 2Easy.
If necessary, the floor may require levelling using appropriate Leveller i.e. BAL LEVEL MAX and allow to dry before installing BAL RAPID-MAT/BAL FLEXBONE VAried or BAL FLEXBONE 2Easy (Sanding and priming would be required for levelling).

Ensure no fixings protrude.
Some boards may require priming, prior to tiling with a cementitious based tile adhesive. Use a suitable primer from the BAL range such as BAL PRIME APD diluted 1:1 with water by volume.
BAL BOND SBR diluted 1:4 with clean cold water by volume. Please refer to the BAL TECHNICAL DATA SHEETS for further information.

IMPORTANT NOTE: Obtain manufacturer's confirmation that boards are suitable for the tiling application and for relevant fixing instructions.

Existing glazed/unglazed ceramic tiles, quarry tiles, terrazzo and natural stone
For wall ensure existing tiles/stone are soundly bonded to a stable background that is sufficiently strong enough to support the weight of the new tiling.
For floors ensure that the existing finish is firmly adhered to the base.
If areas are loose or hollow-sounding, remove and make good with BAL QUICKSET RENDER or 1:3 cement:sand mortar over a slurry bonding coat (1 part sand to 1 part cement by weight, mixed with appropriate amount of BAL BOND SBR pre-diluted 1:1 clean cold water by volume to achieve desired consistency).
N.B. Suitable for existing glazed tiles/brickwork when adhesive has been modified with BAL ADMIX AD1 (pre-diluted 1:3 by volume with clean cold water).

Existing vinyl tiles
Ensure these are in good sound condition and securely bonded to their base.
Remove loose or damaged tiles/areas of sheet along with any loose or soft adhesive.
Remove any polishes, wax, grease etc. with a suitable proprietary cleaner.
NOTE: Cushioned types of flooring are not suitable and must be completely removed along with the adhesive residue prior to tiling.

Metal
Suitable to be used with metal when primed with aggregate blinded **BAL DPM**. *See BAL TECHNICAL DATA SHEET for further details.*

Heated Screeds
Suitable for sand/cement screeds with water fed underfloor heating encased within. Use in conjunction with one of the BAL uncoupling mattings, depending upon the size and type of tiles. *NOTE: For further information on other backgrounds and preparation, contact BAL TECHNICAL ADVISORY AND SPECIFICATION SERVICE.*

APPLICATION/USAGE
Do NOT use in temperatures below 5°C or in damp conditions.

NOTE: Priming/sanding is not required when using BAL FLEXBONE 2Easy.See BAL TECHNICAL DATA SHEET for further information on suitable surfaces and application.
Undertile electrical heating systems
Can be used onto electrical undertile heating systems encased within an appropriate BAL leveller (See table below). Over suitable boards (such as BAL BOARD)/suitable grade plywood overlays (minimum 15mm thickness). Consideration may also be given to the use of BAL uncoupling mattings, depending upon the size and type of tiles.

BAL LEVELLER	THICKNESS	SETTING TIME
BAL LEVEL MAX	2mm – 80mm*	3 – 4 hours
BAL LEVEL FAST	2mm – 30mm	30 – 45 minutes
BAL ACRYBASE	Up to 20mm	3 – 4 hours

*See BAL TECHNICAL DATA SHEET for further information on suitable surfaces and application. *Up to 80mm in localised areas only. Thicker layers must also be tiled within 48 hours.*

MIXING
Use a BAL MIXING BUCKET or other suitable bucket.
1. Add approximately 3.5 to 4 parts powder to 1 part clean cold water by weight. (see table) Never add more water than recommended as this may lead to excess shrinkage or de-bonding.
2. Mix until lump-free mortar achieved.
3. Allow mixed adhesive to stand for 2 minutes before re-mixing for 30 seconds. If using electric drill mixer, blend at slow speed (i.e. under 300rpm). Pot life at 20°C: approx. 2½ hours.

Product Size	Usage	Approx. clean cold water required per bag
20kg	Wall & Floor Tiling	5.4 litres

NOTE: Pot life/setting time will vary slightly with temperature: higher temperatures = shorter; lower temperatures = longer.

4. Occasionally lift a mosaic/tile to check adhesive contact area. When solid bed fixing, leave no voids behind tiles.

5. Leave adequate joints between individual tiles. Install movement joints to BS 5385, Parts 1-5.

6. Clean off surplus adhesive from tile face and between tile joints before the adhesive has dried.

Grouting
1. Wait minimum 6-8 hours (at 20°C) after tile fixing. Select a BAL cementitious grout such as BAL MICROMAX2 GROUT or epoxy i.e. BAL ABSOLUTE GROUT.
If using paper-faced mosaics: Pre-grout sheet and remove surplus. Place in position and tap down to achieve full contact with adhesive. Ensure joints between sheets match joints between mosaic tesserae (i.e. staggered). Wet paper and carefully remove before adhesive fully hardens. Clean off surplus adhesive and grout from mosaic face. Finish grouting.

2. Fill movement joints with suitable sealant i.e. BAL MICROMAX SILICONE SEALANT. *However*, do NOT use on

Trowel recommendations

Area	Trowel
Internal Dry Wall Area (up to 300x300mm tiles)	**Min 6mm Notched Trowel**
Internal Wet Wall Area (up to 300x300mm tiles)	**Min 6mm Notched Solid Bed Trowel**
External & Walls and Floors	**Min 10mm Notched Solid Bed Trowel**
Mosaics (up to 100x100mm tiles) including when used with BAL RAPID-MAT/BAL FLEXBONE VAried)	**Min 4mm Notched Trowel**
Large Format Tiles (> 600x600mm tiles) use to increase the bed thickness of the adhesive.	**20mm Notched Trowel**

NOTE: ensure you achieve the correct contact & thickness of adhesive to both the background and tile in line with BS 5385, Parts 1-5.
NOTE: Follow guidelines to British Standards (minimum 2mm joints for walls and 3mm for floors, size can change depending on size of tile and environments), Contact BAL TECHNICAL ADVISORY AND SPECIFICATION SERVICE for more information.

BAL FLEX ONE tile adhesive may be applied on walls and floors using a suitable notched trowel (up to 20mm x 20mm notch, which provides a circa 7mm bed depth) N.B. For larger format tiles, the reverse of the tile should be back buttered with a thin layer of adhesive to ensure solid bedding.
NOTE: For thicker applications (Maximum 15mm), the mixing water should be reduced to achieve the necessary slump resistance. Do not use thicker beds of adhesive with porous or soft bodied tiles.
Note that when fixing large format tiles, it is essential that the substrate is level better than SR1 to avoid excessive bedding-out of the adhesive and reduce installation time.

Fixing procedure
1. Apply adhesive to wall or floor surface and comb to required bed thickness ensuring the ribs of adhesive all run in one direction. The adhesive may be applied to a bed thickness of 2 - 8mm or up to 15mm in limited, localised areas. (i.e.MAX 0.5m²)
If fixing large/heavily patterned tiles, apply additional adhesive to tile reverse.

2. *For mosaics*: using a rubber tile float, press mosaics into adhesive and beat into required position.
For tiles: press tile firmly into the ribs of the adhesive and into position, with slight twisting/sliding action to ensure optimum adhesive contact.

3. Fix mosaics/tiles before adhesive forms skin (typically over 45 minutes at 20°C, depending on surface porosity /atmospheric conditions). If skin has formed, remove adhesive and apply fresh layer). Discard any adhesive that has begun to set. Do not add further water.

sensitive surfaces that could react to acetic acids released during cure.
For intermediate movement joints, a more durable hard-wearing material may be needed e.g. an epoxy polysulphide sealant or a suitable pre-formed movement joint strip.

NOTE: If completing a swimming pool, do NOT fill pool for at least 3 weeks after grouting (contact BAL TECHNICAL ADVISORY AND SPECIFICATION SERVICE for further advice). If completing a shower, do NOT use shower for at least 2 weeks (as required by Latest version of BS 5385: Part 4).

HEALTH & SAFETY INFORMATION / GOOD PRACTICE ADVICE
For detailed information and safety guidance, please refer to Product Material Safety Data Sheet [MSDS].

TECHNICAL ADVISORY SERVICE
For free expert guidance on use of this product, or any aspect of tiling, contact the BAL TECHNICAL ADVISORY AND SPECIFICATION SERVICE on Tel: 03330 030160 or Email: info@building-adhesives.com

POWERSPEC
A unique computerised online specification system for the design and installation of ceramic, mosaic and natural stone tiling.
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SHELF LIFE
12 months under normal dry conditions. Protect from frost and damp.

QUALITY AND ENVIRONMENTAL STANDARDS
Manufacturing quality assurance standards conform to BS EN ISO 9001. Satisfies the environmental management requirements and operational scope of ISO 14001.

25 YEAR GUARANTEE
All BAL products are supplied with a 25 year product guarantee to be free from manufacturing defects and to be fit for purpose. The guarantee covers materials replacement costs and labour.
This guarantee is subject to use of product in accordance with BAL's instructions and technical data, and good working practice. No liability can be accepted for any loss or damage arising from incorrect use of products or poor workmanship, over which BAL has no control.
Contact BAL Marketing Department for full details.

Sold subject to the Company's Conditions of Sale. *Available on request.*

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NOTE: BAL reserves the right to update instructions, technical data and other information at any time without notice.
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