



# ArdiFlex S1 (Grey)

## High Performance, Fibre Reinforced, Deformable Tile/stone Adhesive

### DESCRIPTION

High polymer modified, grey coloured adhesive formulated with enhanced properties of slip resistance, flexibility and extended open time necessary for fixing large format tiles, slim tiles and natural stones including engineered\* stones on wall/floor in interior/exterior situations. Ardiflex S1 (Grey) is fibre reinforced to increase the flexural and bond strength of the adhesive and to impede the crack propagation in the composite material.

\*Use ARDEX ENDURA UNDERTILE & STONE PRIMER before installation of engineered/artificial tiles/stones.

### STANDARDS

Confirms to **IS 15477: 2019 Type 4TS1** "Specification for Adhesives for use with Ceramic, Mosaic and Stone Tiles"

Confirms to **EN 12004:2017** and is a improved cementitious adhesive (C2) with slip resistant (T), extended open time, (E) deformable (S1) of class **C2TES1**

### FEATURES

- Fibre reinforced for high performance and strength
- Deformable: accommodates differential movement of the covering
- Good slip resistance required for fixing large format wall tiles
- Extended open time
- Bed thickness upto 15mm: suitable for tiling on uneven substrates
- Use of ADMIX AD 2 with Ardiflex S1 (Grey) will improve the deformability property to comply to IS Standard **4TS2** and EN Standard **C2TES2**
- Excellent bond to various building materials
- Excellent water and frost resistance
- Excellent tensile & shear adhesion
- Easy mixing, smooth application & good workability

### SUITABLE BACKGROUND / BASES

Fixing large format tiles/stones on:

- Cement & lime renders
- Fibre cement boards, Type H or MR grade plaster / gypsum boards
- Pre-fabricated concrete walls
- Cementitious floor screed
- Areas subjected to heavy foot traffic
- Existing tiled surface

### PHYSICAL PROPERTIES @ 27 ± 2°C

Pot Life	approx. 5 hours
Setting Time	24 hours
Temperature Resistance	-30°C to 150°C

VOC Content 1.90 g/L

### Properties tested to IS 15477:2019 @ 27 ± 2°C

Property with Test Method	Min. Requirements	Typical Result
Tensile Adhesion Strength (as per Annex A)		
Dry Condition	1.50 N/mm <sup>2</sup>	>1.60 N/mm <sup>2</sup>
Wet Condition	1.00 N/mm <sup>2</sup>	>1.20 N/mm <sup>2</sup>
Shear Adhesion Strength (as per Annex B)		
Dry Condition	1.50 N/mm <sup>2</sup>	>1.55 N/mm <sup>2</sup>
Heat Aging Condition	1.00 N/mm <sup>2</sup>	>1.30 N/mm <sup>2</sup>
Wet Condition	1.00 N/mm <sup>2</sup>	>1.15 N/mm <sup>2</sup>
Open time (as per Annex C)	As per Mftr.	35 mins
Adjustment time (as per Annex D)	As per Mftr.	30 mins
Slip (as per Annex E)	< 0.50 mm	0.20 mm
Deformability (as per Annex F)	≥ 2.5, <5.0 mm	2.70 mm

### Properties tested to EN 12004 : 2017@ 23 ± 2°C

Property with Test Method (as per Part 2)	Min. Requirements (as per Part 1)	Typical Result
Tensile Adhesion Strength (Clause 8.3)		
Initial	≥ 1.00 N/mm <sup>2</sup>	> 1.60 N/mm <sup>2</sup>
After water immersion	≥ 1.00 N/mm <sup>2</sup>	> 1.25 N/mm <sup>2</sup>
After heat aging	≥ 1.00 N/mm <sup>2</sup>	> 1.30 N/mm <sup>2</sup>
After freeze-thaw cycles	≥ 1.00 N/mm <sup>2</sup>	> 1.25 N/mm <sup>2</sup>
Open time @ 30 mins: Tensile Adhesion Strength (Clause 8.1 & 8.3)	≥ 0.50 N/mm <sup>2</sup>	> 0.80 N/mm <sup>2</sup>
Slip (T) (Clause 8.2)	≤ 0.50 mm	0.20 mm
Transverse Deformation (Clause 8.6)	≥ 2.5, <5.0 mm (for S1)	2.70 mm

### COVERAGE ESTIMATES

**Pack size** 50 kg      **Coverage** approx. 1.10 - 1.20 kg/m<sup>2</sup>/mm

Square notch Trowel size	Consumption/m <sup>2</sup> (@ 45° angle of trowel)
4mm X 4mm	1.50 - 1.55 Kgs
6mm X 6mm	2.30 - 2.40 Kgs
8mm X 8mm	3.00 - 3.15 Kgs
12mm X 12mm	4.50 - 4.70 Kgs
20mm X 20mm	7.55 - 7.85 Kgs

**Note:** Coverage will depend on the nature and flatness of the surface and the method of application. For good coverage, it is vital that all surfaces are smooth, plumb, level and free from defects and undulations.

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### APPLICATION INSTRUCTIONS

#### Substrate Preparation

Before starting any work ensure that the base is:

- Sufficiently flat to permit the specified flatness of finished tiling, bearing in mind the permissible thickness of the adhesive.
- Suitable for tiling in the service conditions to which it will be exposed.
- Surfaces to be tiled must be dry, clean and free from loose material and contamination.

#### SITE WORK INSTRUCTION

##### Surface Considerations

New Concrete:

Before rendering/plastering/tiling, allow walls to air dry for at least 6 weeks.

New Cement/Sand rendering

Before commencing tiling, allow plastered surface to air dry for at least 2 weeks (3 weeks for swimming pools).

Existing Concrete/Screed Bases

Cut out all loose or hollow portions and make good with a 1:3 cement: sand mortar applied over a slurry bonding coat\* and dry and cure for 7 days.

Ceramic/Vitrified & Fully Vitrified Tile/Terrazzo/Hard Natural Stone Bases:

Check that existing finish is firmly adhering to the base. Remove any loose or hollow sounding tiles and reprofile with a 1:3 cement: sand mortar over a slurry bonding coat\*. Any surface contamination should be removed with HEAVY DUTY TILE CLEANER/TILE & STONE CLEANER.

\*Slurry bonding coat is prepared by mixing 2 parts of Portland cement to 1 part of ADMIX AD1. Brush on the base immediately before applying the adhesive.

Fibre Cement Boards/Tile Backer Boards:

Ensure that boards are dry, securely fixed, rigid and fixings do not protrude. Do not seal or prime surfaces that are to be tiled. The suitability of the boards as a background for ceramic tiling should be confirmed with the manufacturer.

Overlaid Timber Floors:

Timber floor boards must be rigid and stable to receive tiles and capable of carrying the additional load without deflection. Adequate ventilation must exist beneath the timber board. Overlay existing floor with WBP grade or marine grade plywood, at least 15 mm thick, timber boards should be screwed down (not nailed) at 300 mm centres. All timber surfaces should be primed on the reverse side and edges with ADMIX AD 1.

MDF (Internal Dry Areas Only)/Plywood/Chip Board:

Ensure that sheets are capable of carrying the expected load without deflection; dry securely fixed and rigid and that fixings do not protrude. Where necessary insert noggings to support all board edges and to allow screw fixing at 300 mm centres. Seal the reverse side and edges with ADMIX AD 1. Do not seal or prime surfaces that are to be tiled.

Plaster Board:

Ensure that boards are capable of carrying the expected load without deflection; dry securely fixed and rigid and that fixings do not protrude. Where necessary insert noggings to support all board edges and to allow screw fixing at 200 mm centres.

#### Mixing

Add ArdiFlex S1 (Grey) to clean water. Mix thoroughly until a lump-free mortar is obtained. A 50 kg bag will require approx. 14.0 - 15.0 litres of water to obtain a slump-free consistency. The adhesive is immediately ready-for-use and has a pot life of approx. 5 hours. No further water should be added. Where mixing by weight is not possible, volume mixing can be carried out at site in the ratio of approx. 1: 2.25 (water: powder)

In case of using ADMIX AD 2, use 2.50 litre with 11.5 - 12.5 litres of water and 50 kg of Ardiflex S1 (Grey)

#### APPLICATION

1. Spread not more than the area which can be tiled within the open time of the adhesive.
2. The mixed adhesive is applied to the prepared surface with a trowel and then combed through with a suitably sized square-toothed notched trowel.
3. The tiles should be fixed within the open time of the adhesive and pressed into place with a twisting and sliding action ensuring solid bed fixing is achieved. The open time is dependent on site conditions and will be extended in lower temperatures and shortened at higher temperatures.
4. Check periodically that good contact is maintained with the back of each tile.
5. Touch the adhesive ribs periodically and if a skin has formed, remove the adhesive and apply a new layer.
6. Leave adequate joints between individual wall and floor tiles unless self-spacing tiles are used.
7. Clean off surplus adhesive from the tile face and between joints

#### Note:

- Do not use in damp conditions and temperature less than 5°C
- Seal the sides & bottom of porous stones with UNDERTILE & STONE PRIMER to avoid migration of moisture. (data removed)
- Use suitable clamps along with adhesive at the time of installation of tiles/stones above 3m height as recommended by IS 15477: 2019
- For large span tiling works, leave movement joints at every 3m interval and fill with a flexible sealant as per BS 5385.
- Prevent foot traffic till the adhesive has completely set.

#### SPACERS

Use ARDEX ENDURA spacers (minimum 2mm) for uniform joint width.

#### GROUTING

Grouting should be carried out after 24 hours. Use the

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appropriate grouting material from the range of cementitious and epoxy grouts.

**Note:** The addition of ADMIX GT 1 to cement -based grouts will enhance adhesion to tile/stones edges, increase water-resistance and improves flexibility.

## SEALERS

ARDEX ENDURA offers a range of Tile & Stone surface sealers depending on the desired finish:

- Wet look finish: Use 'Heavy Duty Impregnating Tile & Stone Sealer'
- Glossy finish: Use 'Impregnating Tile & Stone Sealer'
- Natural look: Use 'FC SS' or 'FC Sealer'

## CLEANING

Tools and containers may be cleaned using clean water when the adhesive is still fresh. The hardened adhesive can be removed from tools mechanically.

## STORAGE AND SHELF LIFE

ArdiFlex S1 (Grey) has a shelf life of 12 months when stored in normal dry conditions.

## PRECAUTIONS

Keep out of reach of children. Wear suitable protective clothing, gloves and eyes/face protection. After contact with skin, wash immediately with plenty of clean water. In case of contact with eyes rinse immediately with plenty of clean water and seek medical advice.

For more details please refer the relevant Material Safety Data Sheet

## CONDITIONS OF SALE

Sold subject to the Company's conditions of sale which are available on request.

## NOTE

The information supplied in this datasheet is based upon extensive experience and is given in good faith in order to help you. Our Company policy is one of continuous Research and Development; we therefore reserve the right to update this information at any time without prior notice. We also guarantee the consistent high quality of our products; however as we have no control over site conditions or the execution of the work, we accept no liability for any loss or damage which may arise as a result thereof.

## ARDEX ENDURA (INDIA) PRIVATE LIMITED

an ISO 9001:2015 & ISO 14001:2015 certified company  
Corporate Office & Regd. Office: Unit No. 406 & 407,  
"Brigade Rubix" No. 20, HMT Campus,  
Yeshwanthpur Hobli, Bengaluru - 560013.  
CIN No: U24233KA1997PTC022383 Tel: +91 80 66746500  
Email: [customer-care@ardexendura.com](mailto:customer-care@ardexendura.com)  
Website: [www.ardexendura.com](http://www.ardexendura.com)

### Branches

• AHMEDABAD	+919228019132	• GUWAHATI	+917896002188	• MUMBAI	022 65133299
• AURANGABAD	+918605445577	• HUBBALLI	0836 2970505	• MYSURU	0821 2570171
• BENGALURU	+919972922333	• HYDERABAD	+919703250099	• NAGPUR	+919822223743
• BHUBANESHWAR	0674 2578101	• INDORE	0731 4021148	• PUNE	+919881249292
• CALICUT	0495 2740334	• JAIPUR	0141 2441893	• RAIPUR	0771 4038300
• CHENNAI	044 42805544	• KOLKATA	+919831071084	• SALEM	0427 2211454
• DELHI	+9198106 03431	• LUCKNOW	0522 4043251	• TRIVANDRUM	0471 2598648
• ERNAKULAM	0484 2341044	• LUDHIANA	0161 2532170	• VIJAYAWADA	+918688354587
• GOA	0832 2750992	• MANGALURU	0824 2442176	• VISAKAPATNAM	0891 6469499

