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PRODUCT DATA SHEET

# ARDEX S 21

## Rapid Hardening Floor Tile Bedding Mortar/Levelling/Screeding Mortar

### Features

For fixing floor tiles, pavers, non moisture sensitive natural stone, etc.

Versatile - use with sharp sand to form ramps, pre-level sub-floors, etc.

Internal or external applications including swimming pools

Fluid/pourable consistency - solid bedding easily achieved

Rapid hardening - grout and walk on after 3 hours



ISO 9001  
Quality  
Management  
Systems  
CERTIFIED

ISO 14001  
Environmental  
Management  
CERTIFIED

ISO 45001  
Occupational  
Health and Safety  
Management  
CERTIFIED

Reg No. FM 01207

EMS 565427

OHS 628374

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# ARDEX S 21

## Rapid Hardening Floor Tile Bedding Mortar

### USE

ARDEX S 21 is a special rapid hardening pourable bedding mortar for floor tiles in internal and external locations. It is especially suitable for fixing large tiles, ceramic and brick pavers, terrazzo tiles and natural stone etc.

### DESCRIPTION

The BS EN 12004 C1 F designation for ARDEX S 21 classifies the adhesive as a "fast setting cementitious adhesive". Tiles bedded in ARDEX S21 can be grouted and subjected to loads 3 hours after fixing at normal temperatures. It is particularly suitable for use in situations where the tiling has to be grouted and put into use shortly after bedding, or where low temperatures would unduly extend the setting time of normal cement-based adhesives. ARDEX S21 is a grey powder based on special cements, high quality synthetic resins and fillers, which is mixed with water to produce an easily applied mortar with a working time of approximately 30 minutes. The mortar adheres strongly to cementitious bases such as concrete, cement/sand screeds etc.

The use of ARDEX E 90 admix is recommended when fixing large flat backed tiles and smooth backed, dense and fully vitrified ceramics, porcelain, vitreous mosaics etc. The inclusion of ARDEX E 90 will enable tiles to be fixed to concrete or cement/sand screeds with underfloor heating. For further advice on fixing tiles to fully commissioned underfloor heating systems, contact the heating system manufacturers or ARDEX Technical Support Team.

### SURFACE PREPARATION

ARDEX S21 adheres to dry or moist sub-floors, such as cement and sand or concrete screeds, providing they are sound, clean and free of dust, dirt, oil, grease and other barriers to adhesion, concrete surfaces will require mechanical preparation to reveal the aggregate. **NOTE:** The requirements given in BS 5385 : Part 3 regarding the age of backgrounds prior to tiling/levelling/forming falls. Dense, smooth and impervious surfaces, e.g. terrazzo, can be primed with ARDEX P 82 or ARDEX P 4 prior to fixing tiles in ARDEX S21, however in wet or external locations fix directly to the cleaned impervious surface using ARDEX S21 with ARDEX E 90.

### MIXING

ARDEX S21 powder is added to clean water in a clean container whilst stirring and mixed thoroughly to give an easily worked mortar. The use of an ARDEX mixing paddle or other cage type mixing paddle with a 10mm chuck, variable speed electric drill makes light work of mixing. The mix proportions by volume are:-

Approximately 4½ parts ARDEX S21 powder:  
1 part water.

A 22kg bag requires approximately 3½ litres of clean water.

The mortar is immediately ready for use and has a working time of about 30 minutes at a temperature of 20°C.

The ARDEX S21 can be mixed with ARDEX E 90, a 22kg bag of ARDEX S21 requires 2kg of ARDEX E 90. The 2kg of ARDEX E 90 should be diluted with 2 litres of water, however with large format tiles up to an extra ½ litre of water may assist solid bedding. The consistency may be adjusted from a semi-dry mix to a more fluid mix to suit the application. A 22kg bag may be mixed with up to a maximum of 41½ litres of water for levelling sub-floors and bonding the sand filled mortar (see Levelling Sub-Floors and Forming Falls) ARDEX S21 should be applied at temperatures above 5°C.

### THICKNESS

Floor tiles can be bedded in ARDEX S 21 mortar, minimum bed thickness 2 to 3mm, the bed thickness being determined by the size of the notched trowel used.

### APPLICATION

Bedding Technique. The workability of the ARDEX S 21 allows the tiles to be fixed in a single operation so that no voids are left beneath the tiles, eliminating the need for buttering. The mixed adhesive is applied to the prepared surface with a trowel and then combed through with a suitably sized square-toothed notched trowel in straight ribs to give a ribbed mortar bed. Due to its pourable consistency, the ribs will have slightly rounded profiles. ARDEX S21 has an open time of not less than 10 minutes when tested in accordance with BS EN 12004. For optimum performance under typical UK site conditions tiles should be fixed within 10 minutes. When the mixed mortar begins to firm up the material must be discarded. Do not add more water after the initial set has occurred.

### Levelling Sub-Floors and Forming Falls.

Where the cement and sand or concrete sub-floor requires pre-levelling, prior to fixing ceramic tiles waterproofing etc., the ARDEX S21 mortar can be used, including sand/aggregate where necessary, to obtain the required levels. For applications up to 10mm thick ARDEX S21 can be used in its standard form. The ARDEX S21 mortar should be mixed and applied to the prepared sub-floor and floated out to the required level. For applications between 10mm and 30mm, the mortar is mixed with 1 part screeding sand (0-5mm) by volume to give a semi-dry consistency, using approximately 20kg of screeding sand per bag of ARDEX S21. With damp sand less mixing water should be used. No film of water should form on the surface of the fresh mortar. Where the ARDEX S 21 has to be filled with screeding sand, a bonding coat of the unfilled ARDEX S 21 mortar should be applied immediately prior to applying the sand filled ARDEX S21 mortar. Wood floating of the mortar can be carried out immediately. If the prepared surface is porous it can be dampened down with water prior to applying the above options. Where the base is dense, smooth and impervious the bonding coat should consist of ARDEX S21 with the addition of ARDEX E 90. The levelling bed should be allowed to set and harden prior to fixing the ceramic tiles etc.

### GROUTING

Tiles fixed with ARDEX S21 may be trafficked and grouted after three hours at 20°C.

### COVERAGE

Approximately 1.8kg of powder/m<sup>2</sup>/mm - i.e. a 22kg bag is sufficient for fixing approx. 2½m<sup>2</sup> of tiles with a bed thickness of 5mm and approximately 4m<sup>2</sup> of tiles with a bed thickness of 3mm.

### PACKAGING

ARDEX S21 is packed in paper sacks incorporating a polyethylene liner - net weight 22kg.

### STORAGE AND SHELF LIFE

ARDEX S21 must be stored in unopened packaging, clear of the ground in cool, dry conditions and protected from excessive draught. If stored correctly, the shelf life is 12 months from the date of the packaging.

**NOTE:** For the latest technical or health and safety data on this product, consult the current technical or health and safety datasheet online at [www.ardex.co.uk](http://www.ardex.co.uk)

### TECHNICAL DATA

Bulk density of powder	approximately 1.4kg/litre
Weight of fresh mortar	approximately 2.1kg/litre
Initial Set (Vicat) DIN 1164	approximately ½ hour
	Final Set (Vicat) DIN 1164
	approximately 1½ hours
<b>Compressive Strength (DIN 1164)</b>	
After 1 day	8.0 N/mm <sup>2</sup>
After 28 days	30.0 N/mm <sup>2</sup>
<b>Tensile Bending Strength (DIN 1164)</b>	
After 1 day	3.0 N/mm <sup>2</sup>
After 28 days	10.0 N/mm <sup>2</sup>
<b>Ball Pressure Hardness (Brinell)</b>	
After 3 hours	8.0 N/mm <sup>2</sup>
After 1 day	23.0 N/mm <sup>2</sup>
After 28 days	70.0 N/mm <sup>2</sup>

### PROPERTIES TESTED TO THE REQUIREMENTS OF BS EN 12004

#### Adhesion Strength (DIN 18156-2)

Greater than 0.5 N/mm<sup>2</sup> under all test conditions.

#### Early Tensile Adhesion Strength

0.5 N/mm<sup>2</sup> after not more than 6 hours

#### Open Time: Tensile Adhesion Strength

0.5 N/mm<sup>2</sup> after not less than 10 minutes

**NOTE:** The information supplied in our literature or given by our employees is based upon extensive experience and, together with that supplied by our agents or distributors, 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. Country specific recommendations, depending on local standards, codes of practice, building regulations or industry guidelines, may affect specific installation recommendations.