

# F R

## Acid-proof lining, Adhesive & Grout

### DESCRIPTION

F R is two component cement based on Furane Resin, graded fillers, special additives with a catalyst. The hardened cement exhibits resistance to all non-oxidizing acids, dilute oxidizing acids and has a temperature resistance up to 165°C.

F R is an ideal choice for laying and pointing of acid resistant tiles, grouting where non-oxidizing/oxidizing acids, solvents and alkalis are used for neutralizing reaction. F R should not be used where Hydrogen Fluoride or Strong alkalis are encountered

### FEATURES

- High temperature resistance ranging from -80°C to 165°C
- Suitable for acid proof tile fixing and grouting on concrete substrate
- High strength
- Suitable for acid proof substrates
- Ease to apply
- Resistant to a wide range of chemical and liquids
- High bond strength
- Easy mixing, smooth application & better workability
- Water resistant

### PHYSICAL PROPERTIES

F R @ 27± 2°C

Mixed density	1.96 g/cc
Working time	20 minutes
Bed Thickness	upto 6 mm
Grout width	1-12 mm
Setting time	24 hours
Compressive strength (IS 4456-Part 2)	≥35.0 N/mm <sup>2</sup>
Flexural strength (IS 4456-Part 1)	≥ 4.0 N/mm <sup>2</sup>
Bond strength	≥ 1.0 N/mm <sup>2</sup>
Water absorption	< 0.5%
Full cure:	7 days

### CHEMICAL RESISTANCE

F R is resistant to wide range of liquids and chemicals like most dilute acids, milk, animal fats and vegetable oils, sugars flavourings, essences, mineral oils, kerosene, petrol, mineral spirit, brake fluids, detergents etc. Chemical spillages should always be wiped up as quickly as possible and not be allowed to concentrate up by evaporation.

### CHEMICAL RESISTANCE CHART - SUMMARY OF RESULTS

Reagen	Concentration in %	FR
Acetic Acid		R
Aliphatic solvents		R
Aqua Regia		N
Calcium Hydroxide	(+1% to 1:1)	R
Chlorinated Hydrocarbons		R
Chromic Acid	10	L
Conc. Aromatic Hydrocarbons	100	R
Hydrogen Fluoride		N
Hydrochloric Acid	37	R
Lactic Acid	100	R
Nitric Acid	5	R
Nitric Acid	10	L
Nitric Acid	25	N
Oleic Acid (Upto150°C)		R
Sodium Hydroxide at 30°C	10	R
Sodium Hydroxide	20	L
Sodium Hydroxide	30	N
Sodium Hydroxide	50	N
Sulphuric Acid at 100°C	70	L
Sulphuric Acid at 100°C	80	N
Sulphuric Acid at 30°C	80	R
Sulphuric Acid	20	R
Sulphuric Acid	50	R

Resistant	R	28 Days +
Limited Resistance	L	up to 7 Days
Not Resistant	N	

**Note:** These results are based on immersion testing and ARDEX ENDURA products may appear less resistant when compared with other manufacturer's surface swab test results.

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### COVERAGE ESTIMATES

#### Pack Size

4 kg (Part A 1 kg, Part B 3 kg)

#### Coverage

**As Render** Approx. 5.88 kgs/sq.mtr for 3 mm thickness.

**As Adhesive** Approx. 1 sq.mtr/4kgs kit using a 6mm x 6mm square notch trowel.

**As Grout** Use below consumption calculator

Theoretical coverage calculation:

$$\frac{(\text{Tile length} + \text{Tile breadth}) \times \text{Tile thickness} \times \text{Joint width}}{\text{Density}^*} = \text{kg/m}^2$$

$$(\text{Tile length} + \text{Joint width}) \times (\text{Tile breadth} + \text{Joint width})$$

\* Mixed Density = 1.96

**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.

### APPLICATION INSTRUCTIONS

#### Surface Considerations

Concrete substrates should be clean, dry, free from oil, grease laitance dust and other barrier materials.

#### Mixing

Add 1 part of liquid to 3 parts of powder. The liquid is taken in the pan and the powder is added and mixed to lump free consistency. The pot life depends upon the processing temperature, at  $27 \pm 2^\circ\text{C}$ , it is about 15 to 20 minutes, and it is reduced at higher temperature and increased at lower temperatures. At hot building sites only small quantities should be mixed to avoid uncontrolled exothermic reactions.

Note: Moisture even in the form of water vapours is harmful to powder which has not yet hardened, care should be taken that the working site remains dry and warm until the powder has completely hardened.

#### Application

##### Tiling and grouting

Apply the mixed FR as adhesive at 3 - 6mm bed thickness for wall and 6mm bed thickness for floor area using steel notch trowel, fixing of tiles by gently tamping them by rubber mallet, removing excess adhesive from the joint.

Grout the joints with FR by using grout float or rubber squeeze, removing of excess grout from the joints. Clean the tiles and joints surface within 25 min using a sponge dampened in clean water. Finally, clean the entire surface using a clean cloth and allow to dry completely. The surface should not be used until a week after completion.

In case of grouting on existing tiled surface, before commencing

grouting, confirm that the adhesive bed must be set. Clean the joints of all adhesive and other containments such as efflorescence, laitance, dirt, and other loose material using a grout raker. Ensure the joints are dry before grouting. Make sure that the installed tiles are strongly bonded to the substrate. In case of loose tiles, remove and re-install using FR as adhesive and allow it to set dry for 24 Hrs.

#### Rendering work:

Apply the mixed FR at 3 - 6mm thickness as render using plain steel trowel. In order to achieve good chemical resistance to solvents and alkalies, a heat treatment with hot blowers or IR lamps should be provided for about 8 to 12 hours. The heat treatment should be provided after the initial setting has been completed.

FR that has hardened at room temperature for 7 days exhibits a high degree of chemical resistance. For achieving the optimum resistance particularly to solvents and alkalis, and while carrying out jobs for effluent treatment tanks, a thermal after treatment is recommended.

#### CLEANING

Before the FR sets, the remaining material can be removed with suitable solvent like Methyl Ethyl Ketone or Acetone after treatment of the laid cement.

#### STORAGE AND SHELF LIFE

FR has a shelf life of **6 months** when stored in normal dry conditions.

#### PRECAUTIONS

During mixing and application, the following precautions should be observed: Ensure adequate ventilation and avoid contact of the material with the eyes, nasal passages, mouth and unprotected skin. Avoid contact with the hands by wearing protective gloves and by using, if necessary, a suitable barrier cream. In case of contact with the eyes, rinse immediately with plenty of water and seek medical advice and after contact with the skin wash immediately with plenty of soap and water. Prolonged contact with the skin should be avoided, especially where the user has an allergic reaction to resin-based materials. Always wear gloves and eye/face protection as necessary. Observe personal hygiene, particularly washing the hands after work has been completed or at any interruption whilst work is in progress. Care should be taken when removing gloves to avoid contaminating the insides. In case of accidents seek medical advice.

#### DISPOSAL/SPILLAGE

Spillage of any of the product components should be absorbed onto sand or other inert materials and transferred to a suitable disposable vessel. Disposal of such spillage or empty packaging should be in accordance with local waste disposal authority regulations.

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For further information please refer to the 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: [customercare@ardexendura.com](mailto:customercare@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 2392993	• RAIPUR	0771 4038300
• CHENNAI	044 42805544	• KOLKATA	+919831071084	• SALEM	0427 2211454
• DELHI	+919811810923	• LUCKNOW	0522 4043251	• TRIVANDRUM	0471 2598648
• ERNAKULAM	0484 2341044	• LUDHIANA	0161 2532170	• VIJAYAWADA	+918688354587
• GOA	0832 2750992	• MANGALURU	0824 2442176	• VISAKAPATNAM	0891 6469499