

# FEBSET 45

## Rapid High Strength Repair Mortar

### Description of Product

FEBSET 45 is a specially formulated repair mortar, based on magnesia-phosphate cement pre-mixed with selected aggregates, which gives controlled, extremely high early strengths in temperatures ranging from -20°C (or lower) up to over 30°C. FEBSET 45 can be modified with 10mm aggregate for use in depths over 100mm. FEBSET 45 provides a repair material for concrete slabs which reaches an adequate strength for trafficking, or other use, at a very early age. It is also suitable for use as a repair medium at low ambient temperatures. When FEBSET 45 is added to the gauging water and mixed, an exothermic chemical reaction commences and a chemical setting process takes place within approximately 15 minutes (at 20°C). The material hardens to give sufficiently high early strength to receive heavy traffic within a period of less than one hour at 15 - 20°C.

### Typical Uses

For use in concrete repair situation where the minimum delay and work disruption is of the utmost importance.

- Cold store floor areas.
- Roads and nosing's, bridge decks, Quays/crane rails.
- Industrial floor areas, loading bays and warehouses.
- Around fixing bolts.
- Raising and levelling manhole covers, gratings, hydrants etc.

### Features and Benefits

- High strength at a very early age (45 minutes).
- Minimum delay to traffic and production. When used to repair concrete pavings, it permits early re-opening to traffic - within 45 minutes at 20°C.
- Ready for use. Only requires the addition of water (see Mixing).
- High bond strength. No secondary bonding agents required.
- Highly durable. Excellent resistance to de-icing salts.
- High freeze/thaw resistance: No curing required.
- Can be placed in sub-zero temperatures.
- Non-shrink.

### Instructions for use

**Surface Preparation:** All surfaces should be thoroughly sound and uncontaminated by dirt, oil or grease. The minimum thickness of repair should not be less than 20mm. The boundaries of the repair must be square cut. Under no circumstances should "feather edging" be used.

**Priming:** Although secondary bonding agents are not required, the area to be repaired must be thoroughly pre-wetted with clean water. Care should be taken, however, to ensure that all standing water is removed.

#### Mix Proportions:

Mortar mix (standard):	FEBSET 45 25 kg; Water 1.5 litre
Concrete mix (large areas>150mm deep):	Coarse 10 kg Aggregate (max) Water 1.5 litre FEBSET 45 25 kg
Small Batches :	60ml Water per 1kg FEBSET 45

**Batching:** Batching should always be carried out in 25kg units, (i.e. one bag) of FEBSET 45 or multiples thereof.

**Mixing:** The following sequence must be followed at all times when mixing FEBSET 45:

1. A suitable mixer (i.e. tilting drum) should be located as near as possible to the area of work.
2. The amount to be mixed should never exceed that which can be transported, placed, compacted and finished within ten minutes.
3. Wet down the mixer and drain off the free water.
4. Pour the correcting measured amount of clean water into the mixer first. Do not add the water to FEBSET 45.
5. When adding coarse aggregates, these must be added to the water before the addition of FEBSET 45 into the mixer.
6. Empty the full contents of the FEBSET 45 bag into the mixer. Minimum mixing time is 1 minute.

**Workability:** Although stiff at the outset, workability will improve as mixing continues, to give the desired flow characteristics. **On no account must further water be added. It is also essential that no admixtures are included.**

**Placing and Finishing:** Pre-wet the area to be treated and remove surplus water. Always ensure correct compaction and level surface by ruling with a firm, straight edged tamping bar.

## Revision 3 – 24/11/15

**Cold Weather Working:** Below 5°C down to cold store temperature of -20°C or lower, pre-warm the mixer and equipment with warm water before batching. The mixing water should be warmed to a temperature of 25°C to 30°C. See Tech data for full details.

**Hot Weather Working:** Where the temperature is above 30°C, the use of chilled water in the mix will extend open time. Keep mixing equipment cool via use of cold water etc.

**Wet Weather Working:** Protect areas for 30 mins minimum via tenting etc.

**Thickness:** The thickness of FEBSET 45 Mortar should not be less than 20mm at all times. For depths greater than 100mm, a 10mm single sized coarse pre-wetted aggregate, complying with BS.882 grading limits, may be added up to a rate of 10kg per 25kg FEBSET 45.

### Coverage

25kg of FEBSET 45 combined with the correct amount of water (see Guide to Application, Mixing) will yield approximately 11.4 ltrs. Where coarse aggregates are added at the rate of 10kg per 25kg FEBSET 45, an approximate increase in yield of 30% will be achieved.

### Storage

Store in cool, dry conditions.

### Shelf Life

6 months from date of manufacture when stored in accordance with the manufacturer's instructions.

### Technical Data/Typical Properties

Colour	Grey	
Thickness (minimum and max)	20mm-100mm – for greater than 100mm in depth, a 10mm single sized coarse aggregate (to En12620) may be added up to 10kg per 25kg of FEBSET 45	
Workability @ 20°C	approx 5-12 minutes	
Setting time (initial)	15 minutes at 20°C 35 minutes @ 8°C	
Final set @ 20°C (trafficable)	approx 45 minutes	
Application temperatures	-20°C to +25°C	
Yield per 25kg (mixed as directed)	Approximately 11.4ltrs when mixed as directed. Addition of 10kg coarse aggregate/25kg FEBSET 45 will increase yield by approximately 30%	
Density (wet)	2200kg/m <sup>3</sup>	
Shrinkage	<0.02% 28 days, (shrinkage compensated grade)	
Typical strengths (BS1881) @ 20°C/ 100mm cubes:		
TIME AFTER PLACEMENT	COMPRESSIVE STRENGTH (N/mm <sup>2</sup> )	
1 hour	30	
3 hours	40	
24 hours	55	
28 days	70	