Technical Data Sheet

FASTFILL

Class R4 Rapid Setting Structural Repair Mortar

USES

FASTFILL is a rapid setting, Portland cement-based structural mortar for the durable repair of concrete which cannot be taken out of service for long periods, or in areas subjected to heavy wear such as roads, runways, bridges, decks, floors and footpaths. Can be used as supplied or bulked out with sharp sand or aggregate.

ADVANTAGES

- Incorporates the latest proven cement chemistry, fibre and styrene acrylic copolymer technology.
- Reliable strength development, even at sub-zero temperatures, gives rapid return to service.
- Pre-packaged material requiring mixing with clean water. Can be bulked out with sand or aggregate.
- High bond strength exceeds tensile strength of concrete, thus ensuring monolithic performance of the repair.
- Sets in 10 minutes at 20°C yielding a durable, high strength mortar.
- Dense matrix resists 10 bar water pressure. Very high diffusion resistance to acid gases and chloride ions.
- Sulphate resistance to class DS-5/5m of BRE Special Digest 1 and ideally suited for sewage and wastewater applications.
- Portland cement base with physical properties of cured material similar to base concrete.
- Non-toxic when cured and is listed as authorised under Regulation 31 for use in the supply of drinking water.
- Economic mortar requiring no substrate or inter-layer priming. Part bags can be mixed.

COMPLIANCE

CE marked in accordance with BS EN 1504 Part 3. Fully complies with the Highways Agency Standard BD 27/86 for the repair of Highway Structures. Authorised under Regulation 31 for use in the supply of drinking water. Approved by the BBA, Certificate No. 05/4276. Compliant with LU Standard 1-085 'Fire Safety Performance of Materials'.

PRODUCT DESCRIPTION

FASTFILL is a single component, polymer modified, fibre-reinforced, Portland cement based repair compound, which is physically and chemically compatible with the host concrete. It exhibits unique hydraulic properties to produce a rapid curing mortar with enhanced polymeric properties and reliable strength development which is not significantly affected by low temperature use. Can be used as supplied up to 100mm deep, or can be bulked out with sharp sand or aggregate to a flowing consistency for floor or deck repairs up to maximum depth of 300mm.

CE
0086

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0086-CPD-530942

EN1504-3: Concrete repair product for structural repair
PCC mortar (based on hydraulic cement polymer modified)

Compressive Strength:	Class R4 ≥ 45 MPa
Adhesive Bond:	Class R4 ≥ 2.0 MPa
Chloride Ion Content:	≤ 0.05%
Carbonation Resistance:	Passes
Elastic Modulus:	26.1 GPa
Thermal Capability Part 1:	Class R4 ≥ 2.0 MPa
Capillary Absorption:	0.108 kg.m^{-2}.h$^{-0.5}$
Dangerous Substances:	Complies with 5.4
Reaction to Fire:	Euroclass A2-s1, d0

TECHNICAL DATA

Mixed Colour:	Concrete Grey
Mixed Density:	2150 kg/m^3
Min Application Thickness:	5mm
Max Application Thickness:	50mm on vertical & soffits
	100mm on decks & floors
	300mm when bulked out
Min Application Temperature:	-10°C (with precautions)
Max Application Temperature:	40°C
Working Life (Approx):	10 minutes at 20°C

MECHANICAL CHARACTERISTICS (TYPICAL)

Compressive Strength:	BS 4551 Tested at 20°C
1 hour	14.0 MPa
2 hours	20.0 MPa
4 hours	30.0 MPa
1 day	40.0 MPa
7 days	50.0 MPa
28 days	60.0 MPa

Water Permeability Coefficient:
Taywood Test by Penetration: 2.60 x 10^{-14} m/sec
i.e. 7.5 mm of **FASTFILL** = 1000mm of typical concrete

Chemical Resistance:
Resistant to a wide range of chemicals, e.g. withstands long term immersion in H_2SO_4 at 20% strength.

APPLICATION DATA

Application Guide available on request.

PREPARATION

Mechanically remove all damaged concrete back to a sound core. Wherever possible, the full circumference of the steel reinforcement should be exposed to at least 25mm behind the bars and 50mm beyond the point at which corrosion is visible. On cutting back, feather edges must be avoided. The perimeter of the repair area should be stepped to a depth of 10mm by means of saw, disc cutting or preferably using a power chisel. The areas to be repaired must be free from all unsound material, i.e. dust, oil, grease, corrosion by-products and organic growth. Smooth surfaces should be roughened, all loose material and surface laitance removed, and reinforcement cleaned to bright steel using wet grit blasting techniques or equivalent approved methods. The strength of the concrete sub-base should be a minimum of 20 MPa. The prepared substrate should be thoroughly soaked with clean water until uniformly saturated without any standing water. In winter, use warm water or heat source to ensure the substrate temperature is a minimum of 5ºC before application.

PRIMING

FASTFILL is highly polymer modified and as a result concrete surfaces do not generally require a primer. Highly porous substrates should be primed with **BONDING BRIDGE 842**. Two coats of **STEEL REINFORCEMENT PROTECTOR 841** should be applied to the prepared steel by brush. For further information, please refer to relevant data sheets.

MIXING

FASTFILL should be mechanically mixed using a forced action pan mixer or in a clean drum using a drill and paddle. A normal concrete mixer is **NOT** suitable. For normal applications, typically use 3.5 litres of clean water per 25kg bag. For part bags, use 5.5 volumes of powder to one volume of water. In cold temperatures tepid water may be used to adjust working life.

For screeding applications or larger pockets in decks up to a maximum depth of 100mm, a clean, washed, Medium Grade concreting sand can be introduced, up to 50% by weight.

For deep repairs up to a maximum of 300mm in a single application, or where a pourable concrete is required, coarse, clean aggregates (5-10mm size) can be introduced into the mix, in up to equal proportions by weight, without adversely affecting its physical performance.

PLACING

For normal applications, **FASTFILL** should be compacted, using a placing technique to remove entrapped air, in layers not exceeding 50mm in vertical or soffit situations, or 100mm deep in pockets. When bulking out to the maximum of 300mm, support with shuttering and compact to remove entrapped air. For repairs which require multi-layer applications, it is important to ensure that the previous layers are well keyed and stable but not fully set (usually 15-30 minutes dependent upon temperature) prior to the application of subsequent layers. Final profiling of a high quality is achieved with a steel float. When applying material to floors, the area should be divided up and each bay completed within the working life of the **FASTFILL**. Typically bay sizes should be restricted to 1m^2 but please consult our Technical Department for further advice. Do not polish the surface with a steel float, but use a stiff brush on the wet surface to provide a slip-resistant finish.

CURING AND OVERCOATING

Normal concreting procedures should be strictly adhered to. It is important that the surface of the mortar is protected from strong sunlight and drying winds with **FLEXCRETE CURING MEMBRANE WB**, polythene sheeting, damp hessian or similar. In freezing conditions, the repair should be insulated for a minimum of 4 hours after placing.

CLEANING

All tools should be cleaned with water immediately after use.

SHELF LIFE

12 months in dry, frost free conditions with unopened bags at 20°C.

PACKAGING AND COVERAGE

Pack Size:	25kg
Yield:	13.3 litres per 25kg pack. Up to 23 litres when bulked out with aggregate
Coverage:	A 25kg pack as supplied covers 1.33m^{2}at 10mm thickness

SAFETY DATA

Safety Data Sheet available on request.

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FM 41091 Quality
EMS 597350 Environmental
OHS 597351 Health & Safety

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