

TIEFILL

Class R4 Waterproof Tiehole Filler

USES

For the filling of tie-holes formed by formwork bolts in new construction, particularly where a rapid setting, durable, waterproof mortar is required. Can also be used for sealing grout holes and voids around fixings in pre-cast elements.

ADVANTAGES

- Incorporates the latest proven cement chemistry, polymer and fibre technology.
- Pre-packaged materials in convenient pack sizes only requiring mixing with clean water on site.
- High bond strength exceeds tensile strength of concrete thus ensuring monolithic performance.
- Sets in 30 minutes at 20°C, yielding a durable, high strength mortar.
- Waterproof seal which withstands 10 bar water pressure after only 72 hours curing.
- Polymer modification gives enhanced adhesion and low permeability, providing excellent protection from acid gases, moisture ingress and chlorides.
- Improved tensile and impact strength. Excellent low sag properties.
- Non-toxic when cured and is WRAS Approved for use in contact with potable water.
- Economic mortar generally 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 use on Highway Structures. Compliant with LU Standard 1-085 'Fire Safety Performance of Materials'.

PRODUCT DESCRIPTION

TIEFILL is a single component, polymer modified, fibre reinforced, Portland cement based repair compound, which exhibits unique hydraulic properties to produce a rapid curing mortar with enhanced polymer properties.

The product is supplied as a single component system requiring only the addition of clean water to give a rapid setting, yet durable high strength mortar. It is ideally suited for the filling of voids, particularly in new construction, which need to be rapidly put into service - such as tie-holes, grout holes and voids around fixings.



Flexcrete Technologies Ltd
Tomlinson Road, Leyland PR25 2DY England
17
 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:	R4 ≥ 20 GPa
Thermal Capability Part 1:	Class R4 ≥ 2.0 MPa
Capillary Absorption:	≤ 0.5 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:	75mm
Min Application Temperature:	5°C
Max Application Temperature:	40°C
Working Life (Approx):	20 minutes at 20°C

MECHANICAL CHARACTERISTICS (TYPICAL)

Compressive Strength at 20°C:

1 hour	8.5 MPa
2 hours	15.0 MPa
4 hours	25.0 MPa
1 day	34.0 MPa
7 days	51.0 MPa
28 days	55.0 MPa

Water Permeability Coefficient:

Taywood Test by Penetration: 1.62 x 10⁻¹²m/sec
 ie. 8.75mm of **TIEFILL** = 100mm of typical concrete

APPLICATION DATA

Application Guide available on request.

PREPARATION

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 using wet grit blasting techniques, but for smaller areas needle gunning or bush hammering is effective. The strength of the concrete sub-base should be a minimum of 20 MPa.

For the treatment of tie-holes formed by through-ties, any remaining plastic tube should be cut back and removed to approximately 40-50mm from the concrete face. Additionally, to eliminate the possibility of water tracking around the plastic tube, it should be plugged with a proprietary stopper. The prepared substrate should be thoroughly soaked with clean water until uniformly saturated without any standing water.

MIXING

Mix sufficient **TIEFILL** to use within the working life of the material. Using the mixing scoop provided, proportion the material using the initial guide **TIEFILL**:water ratio of 6:1 by volume or 9.4:1 by weight. Thus an 8kg pack requires 850ml of clean water. Always add powder to water. Small quantities, i.e. less than 2kg, can be mixed by hand. Larger quantities should be mechanically mixed in a clean drum using a slow speed drill and paddle. A normal mixer is **NOT** suitable. Mix together thoroughly for 2-3 minutes to produce a cohesive thixotropic mortar. If necessary, the consistency can be adjusted by the minimum addition of extra powder or water. Use without delay.

PLACING

For normal applications, **TIEFILL** should be compacted, using a placing technique to remove entrapped air, in layers not exceeding 75mm deep. 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 30-45 minutes dependent upon temperature) prior to the application of subsequent layers.

When the colour and surface texture of the surrounding concrete has to be matched, the final 15-25mm layer should be filled with **UNIMATCH**. Consult the relevant Data Sheet for further information. Final profiling of a high quality can be easily achieved with a clean, dampened steel float.

CURING

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.

CLEANING

All tools should be cleaned with water immediately after use.

SHELF LIFE

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

PACKAGING AND COVERAGE

Pack Size: 8kg
Yield: 4 litres per 8kg pack
Coverage: 0.4m² at 10mm thickness

COVERAGE TABLES

RAPID TIE BOLT SYSTEM			
TIE ROD COVER (mm)	TIE ROD SIZE (mm)	TYPICAL NUMBER OF HOLES	
		8kg PACK (4 LITRES)	6 : 1 SCOOP MIX (235CC)
38	15	90	5
50	15	74	4
75	15	57	3
THROUGH TIE TYPE			
30	26	229	13

SAFETY DATA

Safety Data Sheet available on request.

The information herein is correct to the best of our knowledge, but it does not necessarily refer to the particular requirements of the customer. If the customer has any particular requirements it should make them known in writing to Flexcrete Technologies Limited, and obtain further advice accordingly.



Flexcrete Technologies Limited
Tomlinson Road
Leyland
Lancashire
PR25 2DY
United Kingdom
Tel: +44 (0) 845 260 7005
Fax: +44 (0) 845 260 7006
Email: info@flexcrete.com
Web: www.flexcrete.com



FM 41091
EMS 597350
OHS 597351

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