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| Uniclass |
| CI/SfB |

Product Data Sheet No. 110/06

TUFSCREED

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Introduction

Tufscreeed F was developed by Tarmac to meet the increasing demand for factory produced cement sand, levelling screed of all mix proportions incorporating an even dispersion of polypropylene fibres. The presence of suitable fibres can help to achieve a more cohesive material and help control cracking caused by intrinsic stresses.

Tufscreeed F is ideally suitable for use in hospitals, offices, superstores, industrial and other applications where there would be a high cost in loss of use through floor failure due to surface cracking of the levelling screed.

Tarmac Tufscreeed F is produced by adding the optimum amount of fibres to any of the designations listed in table 1

Advantages

Tarmac Tufscreeed F has the following advantages over traditional cement sand levelling screeds:

- Reduced early age shrinkage/cracking.
- Improved flexural strength/flexural fatigue resistance.
- Improved toughness.
- Fibres may be used to replace crack control reinforcement (D49).
- Reduced permeability.
- Better impact/abrasion resistance against site traffic.
- Improved pumping characteristics.
- Factory mixed to give accurate control and better dispersion of cement and fibres with strength classes conforming to BS EN 13813.
- Tarmac Tufscreeed F is also available with traditional prescribed screed mixes.

Product Conformity

Use in accordance with the recommendations in Code of Practice BS 8204. Tarmac ready-to-use cement sand factory produced screed materials conform to the requirements of BS EN 13813.

Tufscreeed F should be used in accordance with the recommendations of Codes of Practice BS 8000:Part 9 and BS 8204:Part 1.

Description

Composition and Manufacture

Tarmac Tufscreeed F is a thoroughly mixed, accurately controlled blends of the following materials:

- Well-graded washed fine aggregate (sand) conforming to BS EN 12620 / BS EN 13139
- Portland Cement conforming to BS EN 197-1

- Polypropylene fibres (normally 6mm)
- Retarding/water reducing admixture conforming to BS EN 934-2/3 giving the optimum working time, normally usable for 8-12 hours from the time of mixing
- Water conforming to BS EN 1008, to give the optimum semi-dry consistency for easy laying and thorough compaction

Where it is intended to pump the material, notify your local sales office allowing reasonable time before work is due to commence.

Density

| Typical test results | Density kg/m ³ |
|------------------------------|---------------------------|
| Fresh wet un-compacted | 1,850 – 2,000 |
| Compacted, set and air dried | 2,000 – 2,200 |

Performance

Results based on prisms made, cured and tested in accordance with the requirements of BS EN 13892-2 (with fibres).

The inclusion of polypropylene fibres provides a three dimensional system of secondary or crack control reinforcement and may be considered as an alternative to steel wire fabric traditionally employed for this purpose. Polypropylene fibres should not be used as an alternative to primary structural reinforcement.

Strength to BS EN 13813

| | | | |
|---|------------|------------|------------|
| BS EN 13813 Compressive strength class | C16 | C20 | C30 |
| Compressive strength N/mm² | 16 | 20 | 30 |
| BS EN 13813 Flexural strength class | F1 | F2 | F3 |
| Flexural strength N/mm² | 1 | 2 | 3 |

Table 1 – Screed material strength classes. These results are indicative and may be subject to change.

Strength – Traditional Prescribed Screeds

| Designation | Traditional prescribed proportions | Minimum Compressive strength at 28 days N/mm ² to BS EN 13813 | Flexural strength N/mm ² to BS EN 13813 |
|-------------|------------------------------------|--|--|
| a | 1:3 | 30 | 3 |
| b | 1:4 | 20 | 2 |
| c | 1:5 | 16 | 1 |

Table 2 – Prescribed screed strength. These results are indicative and may be subject to change.

Typical Hardening Times

Light foot traffic – 4 days. Site traffic – 7 days.

Typical Drying Times

Allow approximately one month per 25mm of thickness. Where the screed is above 50mm, any thickness above 50mm should be allowed to dry for two months per 25mm of thickness. Where the concrete base has excessive moisture content these times should be increased. High humidity or low temperature will also delay the drying out process. As the drying times indicated apply from the completion of any curing operations, the flooring contractor must check the moisture content of the screed prior to laying the final floor finish.

Fire Protection

Tarmac ready-to-use cement sand levelling screed contains less than 1.0% organic material and is classified in accordance with BS EN 13501-1 as Class A1 without testing (Commission Directive 96/603/EC).

Effect of freeze thaw

In cold conditions adequate precautions must be taken against freeze thaw. No antifreeze chemicals or accelerating admixtures should be added to the screed material.

Compatibility

Tarmac Tufscreen F ready-to-use cement: sand levelling screed is compatible with all normal building materials, but wet cementitious materials may attack certain metals e.g. aluminium.

Durability

No problems should occur if the correct screed material has been specified, but Tarmac Tufscreen F ready-to-use cement sand levelling screed is not designed as a wearing surface and should always be covered with a flooring material.

Health and Safety

There is a real danger of contact dermatitis or serious burns. To prevent skin coming into contact with wet cement mixes such as fresh concrete, mortar or screed ensure that suitable protective clothing and eye protection is worn. Where skin contact occurs either directly or through saturated clothing wash immediately with soap and water. For eye contact, immediately wash out eyes thoroughly with clean water. If swallowed wash out mouth and drink plenty of water.

For further information please refer to Tarmac Material Safety Data Sheet – Mortars, Screeds and Renders.

Applications

Uses

Suitable for use on the following bases

- Solid concrete ground floor slabs
 - a) Directly in contact with the slab (bonded)
 - b) With suitable damp proof membrane between slab and screed (un-bonded)
 - c) Over an insulating layer to isolate the screed from the base (floating)
- 2. Precast concrete units or beams with reinforcement
- 3. In situ suspended floors.
- 4. A topping to lightweight screeds based on perlite or other lightweight aggregates
- 5. Certain other situations – refer to the Technical Centre

The above applications are subject to the minimum thickness given in the section on Construction/Site work

One tonne of screed material will have an appropriate volume of 0.43 – 0.48m³. Table 2 shows the approximate coverage area per tonne for a range of thicknesses.

| Thickness mm | Coverage Area M ² /tonne (approximately) | Thickness mm | Coverage Area M ² /tonne (approximately) |
|--------------|---|--------------|---|
| 10 | 45.0 | 45 | 10.0 |
| 15 | 30.0 | 50 | 9.0 |
| 20 | 22.5 | 55 | 8.2 |
| 25 | 18.0 | 60 | 7.5 |
| 30 | 15.0 | 65 | 7.0 |
| 35 | 13.0 | 70 | 6.5 |
| 40 | 11.0 | 75 | 6.0 |

Table 3 – Approximate coverage of screed material

NOTE: Slight variations in sub-base levels will affect the coverage

Construction/Site Work

Site storage

Tarmac Tufscreen F ready-to-use cement sand screed should be tipped on to a clean banker board with a sealed base and sheeted to protect it from the elements. Do not tip new deliveries onto the remains of the previous load. It is good practise to remove screed from all sides of the storage pile equally, this will help ensure consistency of workability.

Preparation

The base concrete must be clean and in particular free from lime, gypsum, plaster, dust, soil, clay, oil or grease. The base concrete should be swept to remove all loose material and wetted with clean water, where the levelling screed is to be placed in direct contact with the base. Just before laying the screed an appropriate bonding material should be brushed into the surface, care being taken that this neither forms deep pools or dries before the screed is placed.

Application

Bonded Construction

(Minimum thickness 40mm)

The bond between the base and levelling screed will depend on the thoroughness with which the base has been prepared. A bonding agent such as Tarmac SB Admixture can be used to obtain a good bond. The bonding agent should be used in a slurry with cement in place of the normal cement and water (3 volumes cement: 2 volumes Tarmac SB Admixture) and the screed is laid before the slurry dries or sets.

Un-bonded Construction

(Minimum thickness 50mm)

When no bond is possible between levelling screed and base, the screed should be at least 50mm thick or, if containing heating pipes a minimum of 65mm thick.

Floating Screed

(Minimum thickness 75mm/65mm for light loading)

A levelling screed that is laid on a compressible layer such as thermal or sound insulating material should be at least 65mm thick or, if containing heating pipes a minimum of 75mm thick. All conduits should be firmly fixed covered with suitable crack control mesh and given a minimum cover of 25mm. BS 8204-1 recommends that where possible pipes and conduits should not be laid within the thickness of a levelling screed.

NOTE: Levelling screeds should be divided into bays only if they are to contain under floor heating pipes or are intended to receive an in situ floor finish.

Topping to Lightweight Screeds

A smooth surface can be given to lightweight screeds which will enable point loadings to be carried.

The normal thickness will be of the order of 10-15mm and if necessary the suction of the lightweight screed should be controlled by wetting with clean water.

Laying

Reference should be made to Code of Practice BS 8204-1.

The material should be spread on the prepared base with adequate surcharge. It is important to compact the screed thoroughly and evenly over the whole area, either by tamping or by mechanical means and then level with a screed board. For many floor finishes the screed must be finished with a steel trowel to give it a smooth dense surface. For such a finish the screed should be allowed to stiffen slightly and then worked with the trowel which will make a ringing sound when the correct action is being used. Excessive towelling should be avoided as this brings a layer of cement laitance to the surface where it may craze and dust.

To aid compaction of thicker cement sand levelling screeds, i.e. over 50mm thickness, the screed may be laid in two layers. Both layers should be of approximately equal thickness and the identical mix and water content.

The first layer should be thoroughly compacted using heavy tamping or a weighted roller. The second layer should be laid as soon as possible, i.e. within 2 hours after compaction of the lower layer (monolithically).

The most common cause of screed failure is poor compaction.

NOTE: Do not use hot air blowers, under floor heating or other means of accelerating drying in the early life of the screed.

Technical Support

Tarmac provides a comprehensive sales and technical advisory service to specifiers and customers.

A quality system has been implemented throughout the company since 1975 and quality procedures are in conformity with BS EN ISO 9001:2008

All Tarmac factories hold third party certification from the British Standards Institution. Details of the certification status of individual factories may be obtained from the Technical Centre

Prices and Conditions of Sale

Prices vary according to mix design, quantity and delivery point. For specific quotations contact your local Tarmac Building Products representative or call or National Sales Helpline on 08701 116 116.

All quotations given, orders placed and materials supplied are subject to the Conditions of Sale available via download from the Tarmac website www.tarmacbuildingproducts.co.uk.

Supply

Tarmac Tufscreeed F ready-to-use cement sand levelling screed is available direct from Tarmac factories located strategically throughout mainland United Kingdom.

Ordering

When ordering state product designation, quantity, date and time of delivery, 24 hours should normally be allowed for deliver.

Delivery

Bulk loads in tipper road trucks generally up to 10-20 tonnes or 7-8 tonne steel skips (where available). The skips reduce wastage and prevent contamination

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| REFERENCES | |
| British Standards Institute | |
| BS EN 197-1 | Cement Part 1: Composition, specifications and conformity criteria for common cements |
| BS 7979 : 2001 | Specification for limestone fines for use with Portland cement |
| BS EN 1008 | Mixing water for concrete – specification for sampling, testing and assessing the suitability of water, including water recovered from processes in the concrete industry, as mixing water for concrete |
| BS EN 12620 | Aggregates for concrete |
| BS EN 13139 | Aggregates for mortar |
| BS EN 934 | Admixtures for concrete, mortar and grout: Part 2: 2001 Concrete admixtures – definitions, requirements, conformity, marking and labelling Part 3: 2003 Admixtures for masonry mortar – definitions, requirements, conformity, marking and labelling |
| BS 8204 | Screeds bases and in situ floorings. Part 1: 2003 Concrete bases and cement sand levelling screeds to receive floorings – Code of Practice. |
| BS EN 13501 | Fire classification of construction products and building elements Part 1: 2007 Classification using test data from fire reaction tests |
| BS EN 13813:2002 | Screed material and floor screeds – screed material – properties and requirements |
| BS EN 13892 | Method of test for screed materials (A multipart standard) Part 2: 2002 Determination of flexural and compressive strength |
| British Cement Association | |
| Publication 48.46 | Construction Guide: Laying floor screeds |
| Tarmac | |
| Product Data Sheet no. 110/05 | Tarmac Truscreed and Truscreed HD |
| Site Guide No.4 | Tarmac SB Admixture for Masonry. Screed and Rendering Applications |
| Site Guide No. 2 | Tarmac Screeds, Truscreed and Truscreed HD |
| Tarmac Safety Data Sheet | Screed |

*Current version applicable to all references