

# TECHNICAL INFORMATION

## SBR POLYMER SCREED

### Product Data Sheet No. 110/04

#### INTRODUCTION

Tarmac SBR Polymer Levelling Screed was developed by Tarmac to meet the increasing demand for factory produced cement sand levelling screed with the inclusion of a synthetic polymer resin to give increased toughness and bond properties.

For new work, normal minimum screed thicknesses should be specified, but where this is not possible, e.g. in refurbishment work, where levels must be maintained, there is often a need for a thinner screed which must be well bonded to the base.

#### ADVANTAGES

Tarmac SBR Polymer Levelling Screed has the following advantages over traditional cement sand levelling screeds:

- Factory mixed to give accurate dispersion of cement and polymer.
- Conforms to the compressive strength requirements of BS EN 13813.
- Minimises shrinkage/cracking.
- Improved flexural strength.
- Reduced permeability.
- Better impact/abrasion resistance against site traffic.
- Improved performance for thinner, bonded screeds where normal minimum thickness cannot be achieved.
- Tarmac SBR Polymer Screed is also available with traditional prescribed screed mixes.

#### PRODUCT CONFORMITY

Tarmac ready-to-use cement sand factory produced screed materials conform to the requirements of BS EN 13813.

Tarmac SBR Polymer Levelling Screed should be used in accordance with the recommendations of Codes of Practice BS 8000: Part 0/9 and BS 8204:Part 1.

#### COMPOSITION AND MANUFACTURE

Tarmac SBR Polymer Levelling Screed is a thoroughly mixed, accurately controlled blends of the following materials:

- Well-graded fine aggregate (sand) conforming to BS EN 12620/ BS EN 13139
- Portland cement conforming to BS EN 197-1.
- Styrene butadiene resin polymer emulsion.
- 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.

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The information given in this technical data sheet is based on our current knowledge and is intended to provide general notes on our products and their uses. Tarmac endeavour to ensure that the information given is accurate, but accept no liability for its use or its suitability for particular application because of the product being used by the third party without our supervision. Any existing intellectual property right must be observed.

## DENSITY

Typical Test Results	Density kg/m <sup>3</sup>
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. Tarmac traditional prescribed screed, Results based on cubes, made, cured and tested in accordance with in-house standard operating procedures.

### Strength to BS EN 13813

<b>BS EN 13813 Compressive Strength Class</b>	C16	C20	C30
<b>Minimum Compressive strength N/mm<sup>2</sup></b>	16	20	30
<b>BS EN 13813 Flexural strength class</b>	F2	F3	F4
<b>Minimum Flexural strength N/mm<sup>2</sup></b>	2	3	4

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

### Strength – Traditional Prescribed Screeds

Designation	Traditional prescribes proportions	Minimum Compressive strength at 28 days N/mm <sup>2</sup> to BS EN 13813	Flexural strength N/mm <sup>2</sup> to BS EN 13813
A	1:3	30	4
B	1:4	20	3
C	1:5	16	2

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\*.

\*Where site trafficking is anticipated from following trade before flooring is laid, protection must be provided. Levelling screeds are not wearing surfaces, therefore the surface should be given adequate protection against damage or wear during subsequent building operations and until the flooring is laid, this protection should be in the form of rigid plywood boards.

For information regarding point loading of screed the please refer to our Site Guide No.8.

## 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 to protect from freeze thaw attack. No antifreeze or accelerating admixtures should be added to the screed material.

## Compatibility

Tarmac ready-to-use SBR Polymer 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 SBR Polymer Levelling Screed is not designed as a wearing surface and should always be covered with a flooring material.

## HEALTH & 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 – Screeds.

## USES

Suitable for use on the following bases:

1. Solid concrete ground floor slabs:
  - a. Directly in contact with the slab (bonded).
  - b. With suitable damp proof membrane between slab and screed (unbonded)
  - c. Over insulation layer to isolate the screed from the base (floating).
2. Precast concrete units or beams with reinforcement.
3. In situ suspended floors.
4. As a topping to lightweight screeds based on perlite or other lightweight aggregates.
5. Certain other situations – refer to your nearest Local Tarmac Building Products Sales Office.

The above applications are subject to the minimum thicknesses given in the section on Construction/Sitework.

## Economics

One tonne of screed material will have an appropriate volume of 0.43 – 0.48m<sup>3</sup>. Table 2 shows the approximate coverage area per tonne for a range of thicknesses.

Thickness mm	Coverage Area m <sup>2</sup> /tonne (approx.)	Thickness mm	Coverage Area m <sup>2</sup> /tonne (approx.)
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 area of screed material

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

## CONSTRUCTION/SITE WORK

### Site storage

Tarmac SBR Polymer Levelling 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\*\*.

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

## APPLICATION

### Bonded Construction

#### (Minimum thickness 25mm)

The bond between the base and levelling screed will depend on the thoroughness with which the base has been prepared. Scabbling to remove any weak surface layer and to expose the aggregate is strongly recommended. 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.

### Unbonded 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.

Where Tarmac SBR Polymer Levelling Screed is laid on thermal or sound insulation boards, which are sufficiently rigid to enable the screed to be properly compacted, the minimum thickness to the Tarmac SBR Polymer Levelling Screed may be reduced to 55 mm.

Use of Tarmac SBR Polymer Levelling Screed for floating screeds helps to minimise the occurrence of cracking.

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.

### 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.

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.**

### Curing

Screeds should be protected from damage after laying. To achieve the full performance of Tarmac SBR Polymer levelling screeds adequate curing is essential and the screed must be covered with plastic sheeting or other suitable material to retain moisture for at least seven days. Whilst damping down of the surface before covering is acceptable, saturation of the screed, e.g. by prolonged hosing is not recommended.

## 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 9001:2015

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 Helpdesk

### **PRICES AND CONDITIONS OF SALE**

Prices vary according to mix design, quantity and delivery point. For specific quotations contact your local Tarmac representative or call or National Sales Helpline on 03701 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.tarmac.com](http://www.tarmac.com)

### **SUPPLY**

Tarmac SBR Polymer 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 20 tonnes or bulk bags (where available).

<b>REFERENCES*</b>	
British Standards Institute	
<b>BS EN 197-1:2011</b>	Cement Part 1: Composition, specifications, and conformity criteria for common cements
<b>BS 7979 : 2016</b>	Specification for limestone fines for use with Portland cement
<b>BS EN 1008:2002</b>	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
<b>BS EN 12620:2002+A1 2008</b>	Aggregates for concrete
<b>BS EN 13139:2002</b>	Aggregates for mortar
<b>BS EN 934</b>	Part 1: 2008 Admixtures for concrete, mortar and grout: Part 2: 2009+A1:2012 Concrete admixtures – definitions, requirements, conformity, marking and labelling
<b>BS 8204</b>	Screeds bases and in situ floorings. Part 1: 2003+A1:2009 Concrete bases and cement sand levelling screeds to receive floorings – Code of Practice.
<b>BS 8000-0: 2014</b>	Workmanship on construction site. Introduction and general principles
<b>BS 8000-9: 2003</b>	Workmanship on building sites. Cementitious levelling screeds and wearing screeds. Code Of Practice.
<b>BS EN 13501</b>	Fire classification of construction products and building elements Part 1: 2007 +A1:2009 Classification using test data from fire reaction tests
<b>BS EN 13813:2002</b>	Screed material and floor screeds – screed material – properties and requirements
<b>BS EN 13892</b>	Method of test for screed materials (A multipart standard) Part 2: 2002 Determination of flexural and compressive strength
<b>British Cement Association*</b>	
<b>Publication 48.46</b>	Construction Guide: Laying floor screeds
<b>Tarmac*</b>	
<b>Product Data Sheet no. 110/05</b>	Tarmac Truscreed and Truscreed HD
<b>Product Data Sheet no. 110/01</b>	Tarmac Screed
<b>Product Data Sheet no. 110/02</b>	Tarmac Prescribed Screed
<b>Product Data Sheet no. 110/03</b>	Tarmac Truscreed 5
<b>Product Data Sheet no. 110/06</b>	Tarmac Tufscreen
<b>Site Guide No. 4</b>	Tarmac SB Admixture for Masonry. Screed and Rendering Applications
<b>Site Guide No. 2</b>	Tarmac Screeds, Truscreed and Truscreed HD
<b>Site Guide No. 8</b>	Tarmac Point Loading Guidelines
<b>Tarmac Safety Data Sheet</b>	Screeds

\*Current version applicable to all reference