TARMAC
A CRH COMPANY

TECHNICAL INFORMATION

TRUSCREED ECO

Product Data Sheet No. 110/12

INTRODUCTION

Tarmac Truscreed Eco is a combination of natural hydraulic lime and sand which can be used as an alternative to a traditional cement levelling screed. Installed in conjunction with a breathable system, this creates a fully breathable floor slab, enhanced by its flexural performance. Tarmac Truscreed Eco has all the added benefits associated with factory production control, delivered as a preblended dry mix that can be supplied to site in a bulk bag or for larger contracts, in state- of-the art silos, each complete with an integral mixing unit. Once power and water have been connected, semi-dry screed can be produced at a touch of a button, providing a heritage screed with the added convenience of modern production and delivery methods.

TYPICAL USES

Tarmac Truscreed Eco is used in internal situations, ideally suited for historic building renovation, to produce a floor ready to accept an appropriate final floor covering. It is breathable, behaves in harmony with other natural building materials such as timber. If the design allows, then water vapour can escape through the screed, helping to combat damage associated with damp upon permeable walls. Tarmac Truscreed Eco is suitable for use with breathable flooring finishes, those made from natural materials, beware of non-breathable adhesives.

ADVANTAGES

- Breathable, behaves in a similar way to other natural building materials.
- Accessible to light foot traffic within 3 days(1).
- With protection, accessible to regulated site traffic 7 days - 21 days(1).
- Can be used for the repair of existing lime screeds.
- Excellent flexural strength to compressive strength ratio.
- Improved drying and shrinkage control.
- Allows installation in larger areas without the requirement for expansion or slip joints.
- In good conditions, the installation of less moisture sensitive floor finishes such as stone bedding can be conducted after 21-28 days.
- Polypropylene fibres may be used if specification allows.
- Environment-friendly as it requires less energy for production of lime when compared to conventional Portland cement and absorbs carbon dioxide through its carbonation process.
- Factory mixing provides improved hydraulic lime dispersion, giving greater and more uniform performance throughout the floor area.
- Factory mixing takes quality control away from the site and into the factory, providing consistent quality materials and accurate proportioning.

(1) At 23°C and 50% relative humidity.

PRODUCT CONFORMITY

Tarmac Truscreed Eco is a fully preblended 1:2 lime:sand factory produced screed materials

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conform to in house quality and operating standards.

COMPOSITION AND MANUFACTURE

Tarmac Truscreed Eco is a thoroughly mixed accurately controlled blend of the following materials:

- Well-graded fine aggregate (sand) conforming to BS EN 12620/BS EN 13139
- Hydraulic Lime NHL5 conforming to BS EN 459-1.
- Water reducing admixture conforming to BS EN 934-2/3.

MIXING

Tarmac Truscreed Eco is supplied dry and fully preblended. For use, water must be added either simply via the Tarmac silo or when supplied in Bulk bags, via a forced action mixer or suitable alternative in order to achieve a consistent workability.

The water must be controlled in order to produces a semi-dry flooring screed, typical water addition rates are within the table below:

Typical water addition:

Screed Workability[2]	Typical water content %
Dry	<8.4
Normal (target)	8.5 – 9.5
Wet	>9.5

[2]Typical water addition guidance determined by hand-ball test method.

DENSITY

Typical test results:

Typical Test Results	Density kg/m^3
Fresh wet un-compacted	1,750 – 2,000
Compacted set and air dried	1,900 – 2,100

PERFORMANCE

Strength

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

Tarmac Truscreed Eco, results based on prisms, made, cured and tested in accordance with in-house standard operating procedures.

Screed Designation	Age	*Compressive Strength N/mm^2	*Flexural strength N/mm^2
Truscreed Eco 1:2	28	4.0 – 8.0	1.0 – 2.5
	56	6.0 – 10.0	2.0 – 3.5
	91-150	8.0 – 11.0	3.0 – 4.5

Table 1: Truscreed Eco typical strength based on ideal conditions.

*These results are indicative and may be subject to change.

Typical Working / Hardening Times

Initial set <1hour, Final set ≥15 hours

Light foot traffic 3 days[1] [3]. Site traffic 7 - 21 days[3].

The screed is suitable for light foot traffic after 3 days[1] but must be covered by plywood rigid boards[3] to ensure the surface remains fully protected.

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 plywood rigid boards.

[3] Where plywood rigid boards have been used, then these should be removed overnight to allow drying to continue.

Installation Considerations

Typical installation thickness would be between 65-120mm this would be dependent upon the specification and floor makeup required.

In adverse weather conditions, the typical working and hardening time may be affected whereby the

relative humidity is more than 70%. Furthermore, it is advisable that the screed should not be laid when the room and/or substrate temperature is below 5° C or above 30° C. The screed should not be installed where it is exposed to wind, and specifically wind tunnelling, facades should be protected in order to minimize its action. Adverse weather can delay the screeds strength development, leading to cracking, surface failure and been prone to damage.

Typical Drying Times

For less moisture sensitive flooring, then allow approximately 21-28 days, this will significantly increase with moisture sensitive flooring such as engineered wood as the moisture content will need to be much lower. In all cases referring to the flooring manufacturers guidelines is imperative.

A number of factors affect the rate of drying, this includes thickness, subbase moisture content, site conditions such as high humidity or low temperatures will all delay the drying out process. For e.g. at 10°C and 70% relative humidity the typical drying time can be extended by a factor of 2.

Curing

Truscreed Eco should be protected from damage after laying. To achieve the full performance of Tarmac Truscreed Eco adequate curing is essential for the initial 72 hours and the screed must be covered with plastic sheeting or other suitable material to retain moisture.
Where possible it is strongly recommended that the room's air temperature be heated to 20°C to aid the drying and curing process**.

****NOTE: Do not use hot air blowers, underfloor heating, or any other means of accelerating the drying of the screed. In all cases the room should be heated and not the screed.**

Fire Protection

Tarmac Truscreed Eco 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 Truscreed Eco is compatible with all normal building materials, but wet cementitious and lime-based materials may attack certain metals e.g. aluminium.

Durability

No problems should occur if the correct screed material has been specified, in conjunction with compatible products, but Tarmac Truscreed Eco is not designed as a wearing surface and should be covered with a suitable flooring material.

HEALTH & SAFETY

There is a real danger of contact dermatitis or serious burns if skin comes into contact with wet lime mixes such, mortar or screed. Wear suitable protective clothing and eye protection. Where skin contact occurs, either directly or through saturated clothing, wash immediately with soap and water. For eye contact, immediately wash out eye thoroughly with clean water. If swallowed wash out mouth and drink plenty of water.

For further information refer to Tarmac Material Safety Data Sheet Lime Based Mortars.

CONSTRUCTION/SITE WORK

Site storage

A site silo ensures that Tarmac Truscreed Eco always retains its integrity.

If material is supplied in a Bulk Bag, then please refer to Tarmac Site Guide No.9.
Tarmac Bulk Bags are weather resistant; however, they should still be stored in a way that protects them from the elements as a precaution. i.e. on pallets/off the floor and covered with a waterproof material such as a tarpaulin.

Preparation

The base could vary from a limecrete slab to compacted clay / glass beads incorporating a geotextile membrane, this should be defined within

the specification. In all cases any base must be clean and in particular free from cement, gypsum, plaster, dust, dirt, oil or grease. Must be sound with all loose materials removed.

Laying

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

The material should be spread on the prepared base with adequate surplus. It is important to compact the screed material thoroughly and evenly over the whole area, either by tamping or by mechanical means if this is deemed suitable 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 correction action is being used. Excessive trowelling should be avoided as this brings a layer of laitance to the surface where it may craze and dust. To aid compaction of thicker lime: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 same 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 common cause of screed failure is due to poor compaction.

SUITABLE FLOOR FINISHES

To compliment the breathable floor structure, it is often finished with stone flags pointed with lime mortar, heavy quarry tiles or engineered wood floors carried on treated or hardwood battens resting on 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 9001:2015
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 proportions/strengths, quantity, and delivery point. For specific quotations contact the nearest Sales Office – see heading Further Information

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 or upon request from your nearest Tarmac Sales Office.

SUPPLY

Tarmac Truscreed Eco is available direct from Tarmac factories located strategically throughout mainland United Kingdom: contact your nearest Tarmac Building Product Regional Office for further details.

ORDERING

When ordering state Tarmac Truscreed Eco, quantity, date and time of delivery, 24 hours should normally be allowed for delivery.

DELIVERY

A silo on delivery holds approximately 14 tonnes of dry material. Once sited, the silo can then be refilled by tanker
to hold up to 33 tonnes in total. It is good practise to maintain the stock held within the silo allowing regular deliveries of up to 29 tonnes to ensure a continuous
mortar supply. For smaller deliveries or to suit site specific requirements the delivery can be supplied in Bulk Bags.

Bulk Bags will be generally delivered on articulated vehicles with offload facility's however, a limited number of smaller vehicles can be made available on request and dependent upon site location.

REFERENCES* British Standards Institute	
BS EN 459-1:2011	Building Lime: Part 1 definition, specifications, and conformity criteria
BS EN 12620:2002+A1 2008	Aggregates for concrete
BS EN 13139:2002	Aggregates for mortar
BS EN 934:	Part 1: 2008 Admixtures for concrete, mortar and grout: Part 2: 2009+A1:2012 Concrete admixtures – definitions, requirements, conformity, marking and labelling
BS 8000-0: 2014	Workmanship on construction site. Introduction and general principles
BS 8000-9: 2003	Workmanship on building sites. Cementitious levelling screeds and wearing screeds. Code of Practice.
BS 8204-1: 2003+A1:2009	Screeds bases and in situ floorings. Part 1: 2003+A1:2009 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 +A1:2009 Classification using test data from fire reaction tests
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*	
Site Guide No. 9	Bulk Bags
Tarmac Safety Data Sheet	Lime Based Screeds

***Where a version is superseded then the most current version is applicable to all references.**