

# Expanfloor\* TF5000



CONSTRUCTION CHEMISTRY

**Heavy duty 5 mm thick, chemical and abrasion resistant epoxy floor screed**

## Uses

Expanfloor\* TF5000 provides an extremely high strength floor topping with exceptional resistance to attack from mechanical wear and chemical spillage. In addition to being impervious its use facilitates a safe non-slip finish for personnel and vehicular traffic, and is ideally suited for:

- Heavy engineering plants and steelworks.
- Battery rooms and electricity substations
- Chemical processing and handling areas.
- Oil refineries and plating factories.
- Auto industries
- Food and beverages industries.
- Paint industries
- Warehouses

In areas where high degrees of cleanliness are required, the surface of Expanfloor\* TF5000 can be sealed with either Expanfloor\* FC140 or Expanfloor\* FC145 epoxy resin floor coatings.

## Advantages

- Long service life - exceptional resistance to abrasion and a wide range of chemicals.
- Safe working environment - good gripping surface to both vehicular and pedestrian traffic.
- Minimal disruption - 5mm thickness causes little interference with existing levels.
- Established track record - successfully proven in a wide variety of aggressive locations.
- Versatile application - food grade and other special versions available to match individual requirements

## Standards compliance

Tested to a variety of international standards : ASTM C109-90 for compressive strength, BS 6319 for tensile and flexural strength and ASTM D-4060 for abrasion resistance.

## Technical support

Expanchem offers a comprehensive range of high performance, high quality flooring, jointing and repair products for both new and existing floor surfaces. In addition, the company offers a technical support service to specifiers, end users and contractors. It is also able to offer on-site technical assistance, an AutoCAD facility and dedicated specification assistance in locations all over the world.

## Specification

The epoxy resin floor screed shall be Expanfloor\* TF5000 from Expanchem. The screed shall be 5 mm thick with a compressive strength of 85 N/mm<sup>2</sup>, a flexural strength of 28 N/mm<sup>2</sup>, and a tensile strength of 16 N/mm<sup>2</sup>. The screed shall provide abrasion resistance in accordance with ASTM D 4060, having a maximum weight loss of 0.77 mg/1000 cycles.

## Description

Expanfloor\* TF5000 is a solvent-free combination of epoxy resin, modified amine hardener, filled with specially graded inert aggregates. It is supplied in pre-weighed units of four part system including colour pack, which are ready for on-site mixing and application. Expanfloor\* TF5000 is laid by trowel as a durable, chemically resistant screed approximately 5 mm thick. The complete system also includes Nitoprime\* 25, a two-pack epoxy resin primer. The finished, cured floor has a slightly granular texture.

## Properties

The values given below are average figures achieved in laboratory tests at 20 °C and 30 °C. Actual values obtained on site may show minor variations from those quoted.

	@ 20 °C	@ 30 °C
<b>Pot life</b>	: 45 mins	30 mins
<b>Initial hardness</b>	: 18 hrs	16 hrs
<b>Full cure</b>	: 7 days	5 days
<b>Light traffic use after</b>	: 24 hrs	18 hrs
<b>Full traffic use after</b>	: 48 hrs	24 hrs
<b>Resistance to chemical</b>	: 7 days	5 days
<b>Compressive strength ASTM C109:90</b>	: 85 N/mm <sup>2</sup> @ 7 days	
<b>Flexural strength BS 6319, Pt3</b>	: 28 N/mm <sup>2</sup> @ 7 days	
<b>Tensile strength BS 6319, Pt.7</b>	: 16 N/mm <sup>2</sup> @ 7 days	
<b>Bond strength to concrete</b>	: > cohesive strength of the concrete	
<b>Abrasion resistance ASTM D4060</b>	: 0.77 g/1000 cycles	
<b>Indentation characteristics Modified US MIL-D-3134</b>	: No indentation from a height of 2.40m	



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## Chemical resistance

Fully cured Expanfloor TF5000\* samples have been tested in a wide range of aggressive chemicals commonly found in industrial environments.

### Acids (m/v)

Hydrochloric acid 36%	:	Resistant
Sulphuric acid 10%	:	Resistant
Phosphoric acid 50%	:	Resistant
Nitric acid 30%	:	Resistant
Lactic acid 22.50%	:	Resistant
Citric acid 80%	:	Resistant

### Alkalis (m/v)

Sodium hydroxide 24%	:	Resistant
Ammonia 35%	:	Resistant

### Solvents & organics

Butanol	:	Resistant
White spirit	:	Resistant
Petrol	:	Resistant
Diesel	:	Resistant
Oil / grease	:	Resistant
Xylene	:	Resistant

### Aqueous solutions

Bleach	:	Resistant
Saturated sugar	:	Resistant
Saturated urea 10%	:	Resistant

## Chemical properties

Expanfloor\* TF5000 has good resistance at ambient temperatures to a wide range of industrial chemicals. Specific data is available on request. Note that it is especially important that spillage is cleaned up quickly since much higher concentrations of chemicals may occur on evaporation. For details of other chemicals, please contact your local Expanchem office

## Instructions for use

Expanfloor\* TF5000 should be applied by specialist contractors who must follow the procedures laid down in the Product Method Statement. Expanchem works with a network of such applicators who have been trained in the correct installation procedures. The following steps are involved in the application which would normally take place over a 2 to 3 day period.

## Surface preparation

It is essential that Expanfloor\* TF5000 is applied to sound, clean, dry substrates in order to achieve maximum adhesion between the floor and screed.

## New concrete floors

These should normally have been placed for at least 28 days and have a moisture content of less than 5%. Floors should be sound and free from contamination such as oil and grease, mortar and paint splashes or curing compound residues. Excessive laitance can be removed by the use of mechanical methods. Dust and other debris should then be removed by vacuum cleaning.

## Old concrete floors

A sound, clean substrate is essential to achieve maximum adhesion. As for new concrete floors dry removal of laitance by use of mechanical methods is preferable. Oil and grease penetration should be removed by the use of a proprietary chemical degreaser or by hot compressed air treatment. Any damaged areas or surface irregularities should be repaired using one of the Expanmortar\* range of products.

## Steel substrates

Steel substrates should be grit blasted to surface quality SA 2½(BS 4232: Second Quality) and primed with a single coat of Expanprime\* 28.

## Priming

All surfaces treated with Expanfloor\* TF5000 should be primed with Nitoprime 25 designed for maximum absorption and adhesion to concrete substrates.

Add the entire contents of the hardener tin to the base tin and mix the two primer components thoroughly for at least 2 minutes - under no circumstances should part mixing be considered.

Once mixed, the primer should be applied immediately to the prepared substrate using stiff brushes and/or rollers. The primer should be well 'scrubbed' into the substrate to ensure full coverage, but care should be taken to avoid over application or 'ponding'.

Allow the primer to dry (see table below) before proceeding to the next stage, do not proceed whilst the primer is 'tacky' as this will lead to unsightly marks in the finished surface.

Porous substrates may require a second primer coat - when the first coat is directly absorbed into the substrate - but minimum overcoating times must still be observed (see table below).



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The overcoating times will vary slightly according to the porosity of the substrate. However, they should be in accordance with the following ambient application temperatures.

20°C	:	6-24 hours
30°C	:	3-16 hours
40°C	:	2-10 hours

### Mixing

Expanfloor\* TF5000 flooring is supplied in four pre-weighed packs (base, hardener, aggregate and colour pack) which are ready for immediate on-site use. Part mixing of these components is not acceptable and will affect both performance and appearance of the finished floor.

Mixing should be carried out using either a forced action mixer; or a heavy duty, slow-speed drill fitted with Expanchem mixing paddle. All such equipment should be of a type and capacity approved by Expanchem. The components should be mixed in a suitably sized mixing vessel.

The colour pack should be added to the base container and mixed for 15-30 seconds, until homogeneous. Then add the hardener and mix for further 30 seconds, until an even colour and texture is obtained.

Thereafter, the contents of the graded aggregate pack should be slowly added and mixing carried out for a further 3 minutes until a completely homogenous material is obtained.

### Standard application

The applicator should ensure that there are sufficient supplies of plant, labour and materials to make the mixing and subsequent application process a continuous one for any given, independent floor area.

Once mixed, the material must be used within its specified pot life –see “Properties” section.

The material should be spread to uniform thickness on the primed surface using either a garden rake or the edge of a plastic trowel. The material should be tamped with a wooden float to ensure complete compaction and finally finished to a closed even texture using a steel trowel. Screeding rods are useful to maintain a minimum compacted thickness of 5 mm

### Floor Joints

All existing expansion or movement joints should be followed through the new floor surface.

Joint sealant & joint geometry should be compatible with the floor type used, intended exposure conditions and likely movement characteristics of the substrate - consult the local Expanchem office for more details.

### Coving

Expanfloor\* TF5000 can be used to form a perimeter edge coving. Skilled applicators can also form stairs and nosings.

### Sealing

Although Expanfloor\* TF5000 is impervious at 5mm thick, in constantly wet operation areas or where a high degree of cleanliness is required, the Expanfloor\* TF-5000 may be sealed with either Expanfloor\* FC140 or Expanfloor\* FC145. The Expanfloor\* TF5000 must have reached initial cure and high spots such as trowel marks rubbed down.

### Cleaning

Expanprime\* 25 and Expanfloor\* TF5000 should be removed from tools and equipment with Expanchem Solvent 102\* immediately after use. Hardened material can only be removed mechanically.

### Maintenance

The service life of a floor can be considerably extended by good housekeeping. Regular cleaning may be carried out using a rotary scrubbing machine with a water miscible cleaning agent at temperatures up to 50 °C.

### Limitations

Expanfloor\* TF5000 should not be applied on to surfaces known to, or likely to suffer from, rising dampness, potential osmosis problems or have a relative humidity greater than 75% as measured in accordance with BS 8203 Appendix A, or by a Hammond concrete / mortar moisture tester type COCO.

In areas where significant thermal shock is likely to occur, for e.g. cold rooms etc., please consult the local Expanchem office.

Expanfloor\* TF5000 should not be applied to asphalt, weak or friable concrete, unmodified sand/cement screeds, PVC tiles or sheet or substrates known to move substantially e.g. steel walkways.

Expanfloor\* TF5000 should not be installed at temperatures below 10 °C or above 45 °C. If in doubt, or for application outside these temperature limits, please consult your nearest Expanchem office.



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In common with all epoxy materials some light shade changes may be experienced over the long term when placed in adverse exposure conditions. Any such change in shade is not regarded as being detrimental to performance.

### Supply

**Expanfloor\* TF5000 (Including colour pack)** : 16 Kg. Pack

**Expanprime 25** : 1 and 2.50 Kg. Packs

**Expanprime 28** : 1 and 2.50 Kg. Packs

**Expanchem Solvent 102** : 5 liter can

### Standard coverage

**Expanfloor\* TF5000** : 10 Kg. / m<sup>2</sup>  
@ 5 mm thickness

**Expanprime\* 25** : 5 – 7 m<sup>2</sup> / Kg.

**Expanprime\* 28** : 5 – 7 m<sup>2</sup> / Kg.

**Note:** Coverage figures given are theoretical - due to wastage factors and the variety and nature of substrates, practical coverage figures may be reduced, this will vary with site and application conditions.

### Storage

#### Shelf life

Expanfloor\* TF5000, Expanprime\* 25 Expanprime\* 28 and Expanchem Solvent 102 have a shelf life of 12 months, if kept in a dry store between 5°C and 30°C in the original, unopened packs.

#### Storage conditions

All products should be stored in accordance with local regulations.

### Precautions

#### Health and safety

Expanfloor\* TF5000, Expanprime 28 and Expanchem Solvent 102 should not come into contact with skin and eyes or be swallowed.

Ensure adequate ventilation and avoid inhalation of vapours. Some people are sensitive to resins, hardeners and solvents. Wear suitable protective clothing, gloves, and eye protection.

If working in confined areas, suitable respiratory protective equipment must be used. The use of barrier creams provides additional skin protection. In case of contact with skin, rinse with plenty of clean water, then cleanse with soap and water. Do not use solvent. In case of contact with eyes, rinse immediately with plenty of clean water and seek medical advice.

If swallowed, seek medical attention immediately - do not induce vomiting.

The use of barrier creams provides additional skin protection. In case of contact with skin, rinse with plenty of clean water, then cleanse with soap and water. Do not use solvent. In case of contact with eyes, rinse immediately with plenty of clean water and seek medical advice. If swallowed, seek medical attention immediately - do not induce vomiting.

#### Fire

Expanfloor\* TF5000 and Expanprime 28 are flammable. Keep away from sources of ignition. No smoking. In the event of fire, extinguish with CO<sub>2</sub> or foam. Do not use a water jet.

#### Disposal

Spillages of component products should be absorbed onto earth, sand or other inert material and transferred to a suitable vessel. Disposal of such spillages or empty packaging should be in accordance with local waste disposal authority regulations. For further information, refer to the Product Material Safety Data Sheet.



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\* Denotes the trademark registered.

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