

Expanfloor* TF10000



CONSTRUCTION CHEMISTRY

Heavy duty 5 - 10 mm thick, chemical and abrasion resistant epoxy floor screed

Uses

Expanfloor* TF10000 provides an extremely durable, high strength, chemical, impact and abrasion resistant floor and is suitable for the following:

- Ideally suitable for use in heavy engineering plants, process areas, oil refineries, workshops and other industrial plants where a floor topping of up to 10 mm thick is required.
- For use in areas of lighter duty where above average durability and low maintenance costs are required.
- For use in overcoating and sealing with one of the Expanfloor* FC epoxy resin floor coating range where high degrees of cleanliness and chemical resistance are required.

In areas where high degrees of cleanliness are required, the surface of Expanfloor* TF10000 can be sealed with either Expanfloor* FC140 or Expanfloor* FC145 epoxy resin floor coatings.

Advantages

- Trafficable - can be open to traffic after 24 hours.
- Durable - capable of withstanding heavy loads.
- Highly resistant to abrasion.
- Chemical resistant - withstands a wide range of chemicals.
- Nonslip - good gripping surface to both vehicular and pedestrian traffic.
- Seamless - eliminates potential sources of failure.
- Low odour - no harmful vapours present.
- High strength - strengths in excess of the concrete to which material is applied.
- Locally produced - formulated for use in Middle East conditions.

Technical support

Expanchem Fospak 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* TF10000 from Expanchem. The screed shall be 5 - 10 mm thick with a compressive strength of 102 N/mm², a flexural strength of 25 N/mm², and a tensile strength of 18 N/mm². 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* TF10000 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* TF10000 is laid by trowel as a durable, chemically resistant screed approximately 5 - 10 mm thick. The complete system also includes Expanprime* 25 or Expanprime WB, a two-pack epoxy resin primer. The finished 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.

	@ 25 °C	@ 35 °C
Pot life	: 45 mins	30 mins
Initial hardness	: 16 hrs	8 hrs
Full cure	: 7 days	5 days
Light traffic use after	: 24 hrs	18 hrs
Full traffic use after	: 48 hrs	24 hrs
Resistance to chemical	: 7 days	5 days
Compressive strength ASTM C109:90	: 102 N/mm ² @ 7 days	
Flexural strength BS 6319, Pt3	: 25 N/mm ² @ 7 days	
Tensile strength BS 6319, Pt.7	: 18 N/mm ² @ 7 days	
Bond strength to concrete	: > cohesive strength of the concrete	
Abrasion resistance ASTM D4060	: 0.77mg/1000 cycles	
Indentation characteristics	: No indentation from a Modified US MIL-D-3134	height of 2.40m



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Chemical resistance

Fully cured Expanfloor* TF10000 samples have been tested in a wide range of aggressive chemicals commonly found in industrial environments.

Acids (m/v)

Hydrochloric acid 18%	: Resistant
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Sulphuric acid 20%	: Resistant
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Phosphoric acid 25%	: Resistant
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Alkalis (m/v)

Sodium hydroxide 25%	: Resistant
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Ammonia 33%	: Resistant
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Solvents & organics

Isopropyl Alcohol	: Resistant
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Ethy Alcohol	: Resistant
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Aqueous solutions

Bleach	: Resistant
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Saturated sugar	: Resistant
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Saturated urea 25%	: Resistant
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Saturated sodium chloride	: Resistant
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Sea water	: Resistant
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Chemical properties

Expanfloor* TF10000 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* TF10000 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* TF10000 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* TF10000 should be primed with Expanprime 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* TF10000 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* TF10000 can be used to form a perimeter edge coving. Skilled applicators can also form stairs and nosings.

Sealing

Although Expanfloor* TF10000 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* TF10000 must have reached initial cure and high spots such as trowel marks rubbed down.

Cleaning

Expanprime* 25 and Expanfloor* TF10000 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* TF10000 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* TF10000 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* TF10000 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* TF10000 (Including colour pack)	: 20 Kg. Pack
Expanprime 25	: 1 and 2.50 Kg. Packs
Expanprime WB	: 1 and 2.50 Kg. Packs
Expanchem Solvent 102	: 5 liter can

Standard coverage

Expanfloor TF10000*	: 20 Kg. / m ² @ 10 mm thickness
Expanprime 25*	: 5 – 7 m ² / Kg.
Expanprime WB*	: 5 – 7 m ² / 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* TF10000, Expanprime* 25 Expanprime WB 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* TF10000, 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.

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

In case of contact with eyes, rinse immediately with plenty of clean water and seek medical advice.

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* TF10000 and Expanprime 25 are flammable. Keep away from sources of ignition. No smoking. In the event of fire, extinguish with CO₂ 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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