

Expanfloor* SL1000



CONSTRUCTION CHEMISTRY

Flow applied, 0.50 – 1.50 mm thick epoxy resin flooring topping

Uses

Expanfloor* SL1000 is designed for use in wide range of industrial environments where a lasting solution to floor maintenance problems is required. It provides a dense, impervious, coloured and chemically resistant floor surface which is hygienic and easy to clean. Typical applications include:

- Clean rooms
- Pharmaceutical plants
- Car parks and garages
- Aircraft handling areas
- Manufacturing areas
- Plant rooms
- Light industrial plants
- Kitchens

Advantages

- Fast application - minimises downtime
- Chemically resistant - good resistance to a wide range of chemicals
- Durable - good abrasion resistance
- Hygienic - provides a dense, impervious, seamless floor surface which is easily cleaned
- Attractive - available in a wide range of colours to enhance the working environment

Description

Expanfloor* SL1000 consists of graded aggregates bound in a pigmented epoxy resin binder. Allowing to achieve greater thickness and supplied as a four-component system, pre-weighed for on-site mixing.

When laid, it provides a smooth, light-reflective surface. It is available in a range of standard colours.

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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

Flow-applied epoxy floor topping

The designated floor areas shall be surfaced with Expanfloor* SL1000, a 0.5 - 1.5mm mm thick floor-applied epoxy resin floor topping. The topping shall achieve a compressive strength of 50 N/mm² and a flexural strength of 34 N/mm² at 7 days when tested to BS6319. At 35°C, it shall be capable of accepting foot traffic at 24 hours and vehicular traffic at 48 hours.

Design criteria

Expanfloor* SL1000 is designed for application at a nominal thickness of between 0.5 - 1.5mm. Substrates should be dry and not suffer, or be likely to suffer, from rising damp. If necessary, suitable damp-proof membranes should be installed to prevent this. Substrates should not have a relative humidity greater than 75% at the time of installation.

Properties

The values given below are average figures achieved in laboratory tests at 23 °C and 35 °C. Actual values obtained on site may show minor variations from those quoted.

	@ 23 °C	@ 35 °C
Pot life	: 1 hours	30 mins
Initial hardness	: 30 hrs	16 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	: 85 N/mm ²	@ 7 days
Flexural strength	: 40 N/mm ²	@ 7 days
Tensile strength	: 20 N/mm ²	@ 7 days
Adhesion strength	: 1.50 N/mm ²	
(ASTM D412)		(Concrete failure)
Application thickness	: 0.50 – 1.50 mm	
Mixed specific gravity	: 1.70 g/cm ³	

Chemical resistance

Fully cured Expanfloor* SL1000 samples have been tested in a wide range of aggressive chemicals commonly found in industrial environments. Tests were performed in accordance to ASTM D 1308 Cl.3.1.2.



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Acids (m/v)

H2SO4 25%	: Resistant
Citric acid 25%	: Resistant
Acetic acid 10%	: Resistant
HCL 18%	: Resistant

Alkalis (m/v)

NaOH 50%	: Resistant
KOH 50%	: Resistant

Solvents & organics

Petrol	: Resistant
Engine oil	: Resistant
Kerosene	: Resistant
Diesel	: Resistant
Skydrol	: Resistant
Break fluid	: Resistant
Ethylene glycol	: Resistant
Propylene glycol	: Resistant

Aqueous solutions

Sodium chloride (saturated)	: Resistant
Urea solution (saturated)	: Resistant
Water(tap/distilled/potable)	: Resistant

Chemical properties

Expanfloor* SL1000 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* SL1000 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* SL1000 is applied to sound, clean, dry substrates in order to achieve maximum adhesion between the floor and topping.

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* SL1000 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* SL1000 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 poured onto the prepared and primed substrate as soon as mixing is complete. It should be spread to the required thickness using a serrated trowel; with care taken not to overwork the resin, spreading evenly and slowly.

Immediately after laying, the material should be rolled, using a spiked nylon roller, to remove slight trowel marks, and to assist air release. The rolling should be carried out using a ‘back and forth’ technique along the same path. An overlap of 50% with adjacent paths is recommended.

Further light rolling may be required to remove surface imperfections, or for subsequent release of trapped air, but should be prior to the setting of the product.

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.

Cleaning

Expanprime* 25 and Expanfloor* SL1000 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* SL1000 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* SL1000 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* SL1000 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.

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.



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Supply

Expansfloor* SL1000 (Including colour pack)	: 10 liter Pack
Expansprime 28	: 1 and 2.50 Kg. Packs
Expansprime 25	: 1 and 2.50 Kg. Packs
Expanschem Solvent 102	: 5 liter can

Standard coverage

Expansfloor SL1000*	: 1 liter / m ² @ 1 mm thickness
Expansprime 25*	: 5 – 7 m ² / Kg.
Expansprime 28*	: 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

Expansfloor* SL1000, Expansprime* 25 Expansprime* 28 and Expanschem 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

Expansfloor* SL1000, Expansprime 28 and Expanschem 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.

Fire

Expansfloor* SL1000 and Expansprime 28 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.

Flash points

Expansfloor* SL1000	: 23°C
Expansprime* 25	: 25 °C
Expansprime 28	: 25°C
Expanschem Solvent 102	: 33°C

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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