

flotherm^o

LIQUID SCREED



Larsen Flotherm Binder is a specially formulated calcium sulphate binder for the production of self levelling (flowing) floor screeds. A high quality flowing screed can be produced simply by mixing with a suitable sand and water at a ready mix plant. Flowing screeds have many obvious benefits over traditional sand and cement screed: quicker to lay; thinner screed depth; less labour intensive; much lower risk of shrinkage or cracking but the main benefits are seen when they are used with underfloor heating systems. Flowing anhydrite screeds fully encapsulate the heating pipes without voids and need only to cover the pipes by 25mm, resulting in a much more responsive heating system which in turn is more economical to run.



APPLY UP TO 1000m² PER DAY
LOW SHRINKAGE
REDUCED SCREED THICKNESS
MAXIMIZES UNDERFLOOR HEATING
SCREED TYPICALLY CONFORMS TO BS EN 13813
CA-C25-F5

TECHNICAL INFORMATION:

PRODUCT INFORMATION	
FORM:	Granular
STANDARD COLOUR(S):	Buff to Light Grey
pH VALUE:	> 9
BINDER STRENGTH CLASS:	CAB 40 (BSEN13454)
COEFFICIENT OF THERMAL EXPANSION:	0.012 mm/mK
THERMAL CONDUCTIVITY:	1.2 W/mK
HAZARD INFORMATION:	IRRITANT – Consult Safety Datasheet before use
CLEANING:	Clean tools, equipment, etc. using warm water. Mechanical means are necessary when the product has set.
PACKAGING:	Bulk and 25 kg bags
STORAGE CONDITIONS:	Store in sealed containers in dry conditions, protected from extremes of temperature
SHELF LIFE:	6 months in unopened manufacturer's packaging

TECHNICAL INFORMATION (continued):

APPLICATION INFORMATION	
WATER DEMAND:	15 – 18% by weight (total water)
APPLICATION TEMPERATURE:	+5°C to +30°C (low temperatures can accelerate setting and warm temperatures can retard setting)
SERVICE TEMPERATURE:	< 55°C (water in heating pipes should not exceed 50°C)
TARGET FLOW DIAMETER:	230 -250 mm
WORKING TIME:	Approx. 3 hours
TIME TO TRAFFIC:	Light Foot Traffic - after 24 hours Site Traffic - after 7 days Underfloor heating commissioning - after 7 days (depending on site conditions)
BED THICKNESS:	Bonded: > 25mm Unbonded: > 30mm Floating: > 35mm domestic > 40mm commercial Underfloor heating: > 25mm cover over pipes
DRYING RATE:	1.8 mm per day up to 40 mm depth. Although forced drying can take place after 4-7 days.
PERFORMANCE INFORMATION	
	*Typical Results to BS EN 13813
TYPICAL SCREED STRENGTH CLASS (BS EN 13813):	CA – C25 – F5
SCREED COMPRESSIVE STRENGTH*:	25 MPa
SCREED FLEXURAL STRENGTH*:	5 MPa

DIRECTIONS FOR USE:

This document is designed to provide sufficient information to concrete producers to allow the production of a high quality flowing screed based on Larsen Flotherm Binder. It is recommended to become familiar with this document and the associated applicator and homeowner datasheets before starting any work.

PLANT REQUIREMENTS

Larsen Flotherm Binder is supplied in bulk powder form and should be stored in a suitable dry powder silo. We would recommend that the silo is a minimum of 50m³. The bulk density of Flotherm Binder is 1200kg/m³.

While Flotherm liquid screed can be produced on a dry plant, better results are often seen on wet plants. Some plants may require modification of discharge chutes to prevent spillage during the loading of lorries.

Important - Flotherm Binder is gypsum based and as such it is imperative that the binder is not allowed to contaminate cement based mixes. Great care must be taken on the plant if cement based mixes are also being produced. It is recommended that a dedicated plant be used and failing this Flotherm Screed production runs must be separated from cement based batches with a plant cleardown routine. It is also important not to recycle lorry and plant wash water for reuse in cement based mixes. Excessive gypsum in a cement based mix will cause loss of strength and durability and may cause detrimental expansion of the hardened material.

Contamination of Flotherm Screed with cement is less critical, but again should be avoided.

MIX DESIGN

It is important to choose the correct sand when starting trials. Sand should be of an approved quality and grading and low in organic matter. We would recommend that sands used are checked at regular intervals for both grading and organic matter. Contact our Technical department for further advice. Trials should always be carried out to optimize the mix design before work commences. Third party accredited quality systems are available for the production of calcium sulphate screeds. The proportion of binder required is typically 550 – 650kg/m³. Sufficient sand is required to produce 1m³ of screed, with sufficient water added to produce a flow spread diameter of 220-270mm with a Haagermann cone. (For details of how to purchase our flow testing kit contact your sales representative.) No other additions should be made to the mix without first consulting our Technical Department.

A typical starting point mix design is:

580kg Binder

1200kg sand (dry weight)

330L water (total water)

Plastic Density is typically 2050 – 2150 kg/m³. All materials should be adequately mixed to ensure full dispersion of materials without lumps. It is recommended that the screed is produced at plant with a flow of 230-250mm and that this is checked for every load as part of the plant quality control.

DELIVERY

Mixed screed should be placed within 3 hours of mixing. Due to the highly fluid nature of the screed it is not normally possible to fully fill mixer trucks for delivery. Depending on the make and size of the mixer drum, a 6m³ truck can carry 4-5m³ of screed and an 8m³ truck can carry 6-7m³ of screed without the risk of spilling. As per common practice, it is recommended to keep mixed screed agitated after batching, during transit and until discharged. On arrival to site it is recommended to allow the applicator to carry out a flow test for approval of the load. If flow is too low a small addition of water may be made (not more than 10L/m³). If flow is too high allow to mix for 10min and retest. If still too high or too low contact our Technical department for advice. The building must be weather tight prior to the placing of any screed material: the roof; external doors and windows must be in place and closed or covered and taped to prevent draughts.

DIRECTIONS FOR USE (continued):

SITE PREPARATION

All substrates must be suitable to receive the screed as per current good working practices. All substrates for bonded constructions should be clean and thoroughly sound; they should be free from standing water, oils, grease, dust, loose particles or any other contaminants which may interfere with adhesion. For floating (or unbonded) and underfloor heating constructions, it is imperative that the highest quality preparation is carried out. All insulation boards should be installed in such a way as to provide a clean even base. A suitable (500µm) polythene sheet should be applied over the insulation. All joints should be lapped to 100mm and fully taped. A suitable 5-10mm PE foam expansion strip should be fitted to the full depth of screed around the entire perimeter of the floor. Where insulation is used as an expansion strip it should be of sufficient thickness to permit expansion of the screed by 5-8mm. Corners and joints should be constructed neatly and taped to form a watertight seal. All openings should be suitably sealed to prevent screed material escaping. Heating pipes should be laid as required and mechanically fixed every 300mm. Heating systems should be pressure tested before applying screed and it is recommended to leave the pipes filled with water to prevent lifting during screeding. Isolation strips should be placed in door thresholds where there is likely to be a difference in operating temperature in underfloor heating circuits. Where isolation strips are not used and at points of stress (e.g. changes in direction) it is recommended to include a coated glass fibre mesh reinforcement. It is recommended to leave designated areas without underfloor heating pipes and clearly mark their location to allow the easy sampling for CM moisture readings without risk of damage to the heating system.

APPLICATION

The screed should be discharged on site to a suitable screed pump. The pump hoses should be first primed/lubricated with a slurry of binder and water. The level should be set with tripod markers and a suitable laser level or water level before pumping commences. After placing, the screed should be lightly tamped with T-bars or similar to ensure full compaction. The screed should be protected from draughts, extremes of temperature and strong direct sunlight during installation and for a minimum of 3 days. The screed should be dry (less than 0.5% moisture content measured by CM) before covering. This can be accelerated by the use of dehumidifiers or by commissioning of the heating system after 7 days. As with alpha-hemihydrate screeds, Flotherm screeds do not generally have surface laitance and therefore will not require buffing.

RESTRICTIONS

All work should be carried out to current best practice, codes of practice and relevant standards. All screeding work should be carried out in line with BS8204. Always isolate gypsum based materials from cement based materials when mixing. A relatively small amount of gypsum contamination in cement based mixes can cause deleterious expansive reactions. Gypsum based screeds are not suitable for use externally or in areas of permanent dampness (e.g. wetrooms, swimming pools, commercial areas where power washing is used routinely). As with all calcium sulphate (gypsum) based screeds, very warm conditions can lead to extended setting times and over-rapid drying, with a risk of cracking. In very cold conditions there is a risk of frost damage and extended drying times. Gypsum based screeds must be suitably primed prior to the application of subsequent cementitious materials, e.g. tile adhesives. Contact our technical department for further advice. Direct contact of alkaline materials (e.g. cement based or gypsum based screeds) with aluminium (e.g. foil backed insulation) may result in the liberation of a flammable gas (hydrogen) which will cause bubbling in the surface of fluid screed materials. Although not generally required, Larsen Flotherm screeds can be used in constructions containing steel mesh. Where heating pipes are tied to the steel mesh for support, the steel mesh must in turn be fixed to the floor to prevent the pipes floating up through the screed. Flotherm screeds typically set and harden quicker at lower temperatures (down to 3°C) and slower at higher temperatures.