



LiquidFloorScreed™

from Hanlon Concrete *experts in Floor Screed*



UNDERFLOOR HEATING FLOORSCREED



Underfloor Heating and Floor Screed Guide

Why Hemi-hydrate liquid floor screed is the best solution for your under floor heating needs

The industry for many years used standard sand and cement screeds for floors however with the introduction of under floor heating this methodology became redundant and a new solution was required as concrete totally sub optimizes the value of the under floor heating system. The first solution to this problem generated a range of Anhydrate products which helped but still fell well short of requirements as they needed further buffing and sanding before final flooring finishing such as tiling etc. They tend to dry into a powdery finish that needs to be sanded, buffed and sealed before tiling. This drives extra costs for the project and adds wasteful lead time.

The industry then solved the Anhydrate problem by developing a Hemi-hydrate product. This did not have the side effects of Anhydrate and instead dry's into a smooth ready to tile surface. This was a big breakthrough. This product is available in Ireland in 25kg bag and bulk Readimix formats. We looked at the prospect of using the 25kg bagged product but felt it was a bad solution for our customers as it is not possible to be centrally batched and hence can be inconsistent from mix to mix on site if batched on the customer site. Which is clearly not ideal even-though it is used by some screed suppliers. Also the quality of sand blended with the binder is critical and given the diversity of sand quality across the island of Ireland we could not guarantee customer quality would be to our high standards without controlling the sand supply as well.

This collection of problems led us to follow the only real solution for our customers, that being to import bulk hemi-hydrate binder from Europe and centrally mix and batch it with a controlled sand supply of a known high quality standard and under controlled conditions. We carried out extensive sand quality checks and have identified one excellent source that we own and will only use with liquid floor screeds from our site. We are the only importer of bulk hemi-hydrate in Ireland and hence the only readimix supplier of Hemi-hydrate liquid floor screed.

The key advantages of Hemi-hydrate liquid floor screed over conventional screeds are. Please reference the two images above.

- Hemi-hydrate typically is laid at 50mm thickness whereas concrete needs to be laid usually at 90mm thickness. This means that the under floor heating pipes have to heat a much larger thermal bulk of flooring when using concrete and hence takes much longer to heat up. It effectively needs heat applied several hours earlier to heat the house. In modern living and weather conditions we cannot always predict patterns of usage and heat cycles and hence this does not work well. People need a more immediate and responsive system that can heat the house faster on demand. Hemi-hydrate provides that solution.
- The heating and cooling cycle of the floor generates a natural expansion and contraction effect which in concrete usually leads to cracking. This problem is solved with Hemi-hydrate as there is a natural elasticity in the binder that caters for this mechanical effect and hence avoids cracking. This is a big quality advantage.
- As can be seen from the two pictures above, concrete, always has a porous nature due the gravel content of 10mm or 20mm pebble. Air pockets in the concrete are thermal insulators and hence work against the thermal transmission and slow heat transfer rates from the under-floor heating pipes into the tiles and room overhead. Hemi-hydrate, as can be seen in the image above, is only 50mm thick and has a fully dense cross sectional texture with no porosity and trapped air pockets. This ensures it can transfer heat at a much more efficient and rapid basis which translates into significant economic running cost advantage to the customer due to reduced on-going heating bills. This is a huge saving for the customer.
- To ensure heat transfer between the heating pipes and the floor you need excellent 1:1 contact area between the pipes surface area and the surrounding screed. In the case of concrete, it is very hard to impossible to get under the heating pipes and the wrap around cover in significantly compromised and hence heat transfer is seriously impaired. This is also due to the gravel texture of the concrete. In the case of hemi-hydrate, the floor screed is applicated in a liquid form and hence it goes under the pipes and around them on 100% basis with no loss due to gaps. It dry's as seen in the image above in a fully compacted, non porous nature with 100% 1:1 contact on all pipe surfaces. This vastly increases the thermal efficiency of your floor and ongoing reduction of your heating bills.
- Speed and time management is very important. A hemi-hydrate floor for a regular 200-250m² house can be fully finished with our team in approx. 4 hours. This takes much longer with concrete as it needs to be floated and levelled. Our liquid floor screed is fully self levelling and only needs minor dapping. It can be walked on within 2 days and is fully dried ready for tiling with approx. 5 weeks depending on weather conditions. We can also applicate a full house with only two people where significantly more staff would be required and for a longer period in the case of concrete.
- Finally one should always use a Hemi-hydrate over an anhydrate product as any appearance in initial economy is lost on the slightly cheaper anhydrate due to the extra sanding/buffering and sealant needed to finish the floor afterwards before being ready for tiling.



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