

Selecting Sands for Gypsol Screeds

The sand selection for self-compacting materials is very important, and in this respect there is little difference between Gypsol screeds and concrete; correct sand grading is a fundamental need. Below is some advice on selecting the sands that work well, and some of the issues that may be experienced with “non-ideal” sands.

General Points

In general it is very important that sands used for Gypsol screeds are clean, washed and of consistent quality. All of this should be regularly monitored. All aggregates sold in Europe for construction should be CE marked, and sands for screeds are often best represented by EN 12620 Aggregate for Concrete. All producers should be able to produce a trend of grading results, these should be checked for consistency and be near to the ideal grading on page 2.

Grading / Particle Size Distribution

An ideal grading is given on page 2 and should wherever possible be followed. Blending different sands to achieve this grading is recommended if a single sand source cannot achieve the required grading. The sand should be continuously graded (i.e. with an appropriate amount of coarse, medium and fine particles and with no majority of one size).

Fine Sands

Fine mortar or building sands are generally unsuitable as they have a high water demand which leads to excessive shrinkage, poor levelling properties and low strengths. This can result in cracking of the finished floor that will require remedial action. Because of this, high silt contents (over 10% passing a 0.150 µm sieve, or over 2.5% passing a 63 µm sieve) should be avoided, and these can also indicate high levels of clays or organic material which may detrimentally affect the setting time and strength of the Gypsol screed.

Coarse Sands

Coarse or angular sand often has a deficit of finer material and can result in a screed that will segregate unacceptably, have a high level of bleed (causing surface defects) and which can cause blockages in the pumps. Aggregate retained on a 6 mm sieve may make the product difficult to pump and can separate and cause blockages.

Contamination

Contamination should be avoided, for example, lignite contamination is not aesthetically pleasing and it can damage the screed surface, requiring remedial action. The same applies to many other sources of contamination such as pyrite. Contamination by clay or organic material is also bad for the screed, causing problems with strength, setting time and variable workability.

Water Absorption

Low water absorption (below 1.0%) is preferable as sands with higher water absorptions are prone variable flow characteristics in the final screed, particularly in the warmer months when measuring the moisture content accurately can be difficult. Sands with higher water absorption are also more prone to shrinkage cracking in the final screed.

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Ideal Sand Guidance

Sieve Aperture Size (mm)	% Passing		
	Coarse Limit	Fine Limit	Ideal
6	100	100	100
4	85	100	95
2	70	97	90
1	55	90	80
0.500	40	70	55
0.250	5	30	19
0.125	0	4	2
0.063	0	2.0	1

Ideal Sand Grading

