Oscreed QD

FAST CURING SCREED ADMIXTURE FROM OSCRETE

Concrete floor screeds that combine good workability and rapid curing characteristics have been around for some time, but the most effective types are sometimes available only through a tightly controlled network of licensed contractors.

New developments in chemical admixture technology from Bradford based construction chemicals specialists, Oscrete Construction Products, mean that an admixture which controls both the drying time and workability characteristics of concrete screeds is now available to the wider industry, bringing significant benefits to screed producers and screed installers alike. Building News delves a little deeper.

Fast drying screeds mean that floors can be trafficked earlier with less risk of surface damage. The sooner a floor screed has dried the quicker follow on trades such as plumbers and electricians can access the floor to complete their particular stage of building fit-out.

The reverse side of this fast-drying coin is the shorter time-period the screed layer would usually have to place the screed before it goes off and becomes unworkable. Chemical admixtures called "retarders" can help by slowing down cement hydration, giving a longer period of screed workability. An allowance for standing time can therefore be built into the screed characteristics. 8 hour workability is an industry accepted norm.

So, screeds that contain retarders to maintain workability as well as accelerators to ensure rapid hardening are something of a holy grail for screeds and were previously available to a selected few manufacturer- approved firms.

To put this into perspective, drying of cement based screeds usually progresses at a rate of one day per millimetre-thickness of screed. So, a 50mm thick screed will go off completely in fifty days; a 75mm thick screed in 75 days, which is clearly an unacceptable length of time to wait, bearing in mind the deadline pressures that the construction industry works to.

Of greater significance to the builder however, is the speed at which a screed will dry to give it sufficient strength to bear foot traffic. Thanks to the specialised powder screed accelerators incorporated into the Oscreed QD mix, this delay is now reduced to a much more acceptable 7 -21 days.

The speed at which a screed dries is a function of the chemical reaction between the cement and moisture contained in the mix. It is important to keep moisture content to the minimum as an excessively wet mix can result in shrinkage during curing, leading to cracking of the screed. However, too little moisture will result in un-hydrated cement and therefore weaker screeds, so a balance must be struck.

Water reducing admixture can be used to improve the efficiency by which cement utilises the moisture content of a mix and it is in this area that Oscrete has succeeded with its Oscreed QD admixture.

Oscreed QD, is one of a new generation of powder based super-plasticisers/accelerators which maximises the speed of cement hydration by causing the cement particles to break down and use moisture more efficiently.

With Oscreed QD added to the screed mix, less moisture is needed to hydrate the cement, so there is less residual moisture required to be dissipated during and after curing.

Because the cement becomes fully hydrated quicker than in conventional mixes, the industry standard measure of 75% relative humidity is reached much earlier in the process, meaning curing completes earlier.

So dramatic are the improvements in curing performance claimed for Oscreed QD, that in independent tests against its peers, results showed that at 50% dosage it performed equal to its competitors, and when dosed at the same level, Oscreed QD showed an 18/20% performance improvement over its closest rival.

The independent testing programme was carried out by The Centre for Infrastructure Management at Sheffield Hallam University, under the direction of Principal Consultant, Dr F.O'Flaherty and Director, Professor P Mangat.

Tests were undertaken under laboratory conditions to assess performance against peer admixtures, using a sealed humidity enclosure and hygromaster equipment to measure relative humidity. Screed samples were exposed to laboratory air after casting, with relative humidity of the air being measured at 1,2,3,4 and 7 days age. In addition, compressive strength and modulus of rupture tests were performed at 28 days, in accordance with EN 13892-2.

Results showed that the performance of Oscreed QD dosed at 250g / tonne was the equivalent to its closest peer-screed dosed at 500g / tonne. This represents a 100% performance improvement over its nearest rival admixture. At dosage parity, Oscreed QD out-performed its peer admixture by 18-20%

Surface hardness and bearing capability, which govern access times for follow on trades, were also put to the test at a multi dwelling, housing site for Seddon Homes in Cheshire. Screed dosed with Oscreed QD, prepared by John Carrs Liverpool and installed by screed specialist John Williams Ltd, was accessible to foot traffic within 12 hours of placing.

According to Dan Kilgallon, Oscrete's Operations Director, Oscreed QD will be of particular benefit to general contractors as well as specialist screed producers and installers as its ease of use and straightforward dosing means it can be added to on-site screed mixes produced by mobile volumetric equipment as well as off-site, pre-mixed screeds.

Oscreed QD will also be made available generally rather than through a limited, approved contractor network, as is the case with some competing screed additives."We don't believe that restricting Oscreed QD to a small number of "Licensed Contractors" is the right way to go." said Mr Kilgallon.

Oscreed QD is supplied by Oscrete direct to contractors in packs of 52 x 250 gramme sachets and 80 x 90 gramme sachets.