

Admixtures for Hot Weather

The laying of concrete in hot weather places extra demand on the concrete worker.

EXTRA WATER REQUIRED - For the same slump concrete requires more water when it is hot than when cold. This reduces strengths and increases drying shrinkage.

SETS QUICKLY - Concrete setting is a chemical reaction. The hotter it is the faster it happens. However, it can mean inadequate time to place and finish the concrete.

INCREASED RISK OF CRACKING - Loss of moisture increases the risk of plastic cracking and increased drying shrinkage.

Water Reducers and SuperPlasticisers

Water reducing admixtures improve the workability of a mix and improve the dispersion of the cement. They can be used to reduce the amount of water in a mix or to improve the workability for the same water content. Water reducers are in almost every metre of concrete produced. Superplasticisers are really just very efficient water reducers and give less set retardation. A reduction in water is very good for reducing shrinkage and improving strength.

Retarders

Retarders are designed to retard the set so that the concrete worker has enough time to finish the concrete. It is also useful for maintaining slumps during long hauls to a construction site. Retarders temporarily stop the hydration process but after the planned delay the hardening develops at an accelerated rate.

HOWEVER, if superplasticisers or increased amounts of water reducers are used to reduce water content then you will get less bleed than you will be used to. Bleed is effective at protecting the slab from drying in the early stages, so for hot and/or windy conditions concrete.

Water reducers, superplasticisers and retarders retard the concrete setting. Plus, with water reducers and superplasticisers, you will have less bleed water. Again on hot and/or windy days this can mean the top dries out while the bottom of the concrete remains retarded. This leads to a “spongy” surface that is very difficult to recover. The balance is to provide enough life to be able to work the concrete but have water misting equipment and anti-evaporation sprays on hand to control evaporation. All loads should be dosed with the same amount of admixtures to ensure even setting times.

Consult your Allied Concrete representative for specialised information.

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Allied Concrete have endeavoured to present the best possible information. However, it disclaims any responsibility for the application of the principles discussed.

