KÖSTER BDM Method Statement

KÖSTER BDM is a Crystallizing integral waterproofing additive for concrete.

KÖSTER BDM is added at the batching plant during production and will waterproof, strengthen and increase the chemical resistance of the concrete.

KÖSTER BDM blocks capillaries and has a water-repelling effect. It is free of corrosive ingredients and is resistant to mechanical damage to the surface.

The modified concrete is supplied to site and is poured and installed by the contractor. In-depth, on-site quality records need to be kept, including concrete batch records and details of time and location of each pour.

Concrete Mix Requirements

KÖSTER BDM is added to the mix water. The water mixed with KÖSTER BDM must be used within 24 hours. The amount of water is reduced by the same amount of BDM used. The amount of KÖSTER BDM added is 2% by weight of the cement / binder content. All other aspects (cement types / cement content / designed strength achievement / other admixtures) remain solely the responsibility of the concrete supplier.

Basic requirements:

Cement Content – Minimum 350kg content per m^3.
Water Cement Ratio – between 0.42 and 0.49
Consistency – S3 Pump mix target slump of 140mm to be specified.

Notes:

The concrete shall be placed at an S3 pump mix (target sump of 140mm to be specified). Concrete with a slump less than 75mm or greater than 160mm shall not be placed. A record of any slump tests shall be maintained on site.

All concrete must undergo a fast spin on site for 1 minute prior to discharge of concrete. No grout-rich, pump-priming material must be allowed to discharge into the structure.

The contractor will inspect the concrete delivery tickets and note the following:

Water cement ratio
Minimum cement / binder content
Consistency - S3 Pump mix target slump 140mm
That KÖSTER BDM is stated as an admixture
Completion of the Delta site monitoring form

Placement of Concrete

KÖSTER BDM modified concrete is to be prepared, placed, compacted and cured on site in accordance with the industry codes, and published best practice standards.

KÖSTER ARE NOT RESPONSIBLE FOR WORKMANSHIP RELATED ISSUES RESULTING IN CRACKED, UNDER COMPACTED OR INSUFFICIENTLY CURED CONCRETE.

It is assumed that KÖSTER BDM modified concrete is placed by a suitably competent and qualified contractor who fully understands and applies the best concrete industry standards for handling and curing concrete on site.

All section thicknesses are required to be a minimum of 200mm thick (podium deck applications 300mm thick).

Concrete should not be allowed to drop more than a maximum of 2.5m from the end of the static line pump or skip hopper hose. If conditions require a concrete fall greater than 2.5 metres, then a suitable 'Tremie' must be used.

The internal face of any formwork should not be coated in a retarder.

Never pour the concrete: -

- onto active, live water i.e. leaking piles, water coming through blinding or heavy standing water.
- with a drop of more than 2.5m as this is likely to cause segregation and honeycombing.
- if the concrete is supplied as "out of specification" or "not guaranteed" etc. due to adverse ambient temperatures, weather conditions or other causes.
- that has had additional water added unless with the prior approval of the concrete batching plant.
- without fully checking all preparation, including rebar placement, tightness of shuttering and preparation of surfaces.
- if the temperature is likely to drop below freezing.

Pour Ratios:

Industry codes of best practice advise that: -

- Wall pour ratios are a maximum of 3:1 (1 x height by 3 x length max).
- Slab pour ratios are a maximum of 2:1 (1 x length by 2 x width max)
- Podium slab pour ratios are a maximum of 1.5:1 (1.5 x length by 1 x width max)
- Capping beams are poured with a maximum single section length of 10m.

Pour Sequencing:

Pouring of wall or slab sections is best done sequentially avoiding in-fill (hit & miss) sections.

Pour layout:

Pour layout and pour sequencing is by agreement between the structural engineer and the contractor.

Joint Details:

Slabs should be cast with a monolithic kicker which is to be trowelled and finished level. KÖSTER Quellband Waterbar is to be used to seal all construction joints.

Preparation of Construction Joints:

All wall stop-ends, vertical slab-joints and kicker joints are to be retarded and jet washed while still green, to leave clean exposed aggregate to provide a good key.

Note: When using retarders, it is essential that all remnants (traces) of the paste and loose deposits are removed by jet washing to leave clean exposed aggregate prior to subsequent pours.

Concrete curing methods

KÖSTER BDM modified concrete should be cured in the same way as standard concrete with the objective of achieving a crack-free, water-tight structure. If there is any doubt as to the techniques used for curing concrete in any particular conditions, then please refer to industry standard publications.

Strike times:

As a general rule formwork striking times are determined by the heat of hydration, ambient temperatures and other varying conditions. It is not possible to state a universal strike time to ensure successful crack-fee concrete, as this will vary according to ambient conditions. In general terms a lower risk approach is to strike formwork when the temperature of the core of the cast element reaches the ambient temperature and when the initial strength has also reached 10 MPa.

Pouring concrete in basements, especially waterproof concrete requires careful consideration when striking the formwork. The Strategy regarding striking times is largely determined by the ambient temperatures at the start and end of the pour.

For further guidance please refer to established industry practices or The Concrete Society guidance document no.20 available directly from The Concrete Society (www.concrete.org.uk).

Post-Pour Concrete Checks

Any leaks or moisture present especially due to workmanship issues where cracking or under compaction has occurred (honeycombing) are the responsibility of the contractor to rectify.

Prior to back filling against a below ground wall, the contractor shall carry out a thorough inspection of the wall to check for potential fine cracks. If any are identified, a coating of an external tanking material should be applied prior to back filling.

N.Day 13/05/2020