



UNSHRINKABLE FILL

The solution for filling public services trenches

Unshrinkable fill is a self-compacting fill material produced in the concrete plant and delivered by using a conventional concrete mixer. In Quebec, unshrinkable fill was developed in the early nineties and is widely used to quickly fill trenches.

Placement

Unshrinkable fill is placed directly from the concrete mixer. No other type of placement can be used. The properties of unshrinkable fill develop during high-velocity placement. The material must be poured directly from the concrete mixer into the trench, quickly and without interruption. If pouring must be stopped, the unshrinkable fill must be remixed thoroughly before work can resume.

Fluidity

Unshrinkable fill is highly fluid, allowing the material to flow freely into the structure to be filled. This property is particularly useful in cases where the trench is cluttered (manholes, pipes, etc.). However it is impossible to measure the slump of unshrinkable fill.

Bearing capacity

The maximum bearing capacity of unshrinkable fill is reached quickly when the product has been properly placed. Generally, its bearing capacity is 95 % of the optimal modified proctor. The bearing capacity measured on the work site has shown that typical CBR (California Bearing Ratio) indices of unshrinkable fill are similar to those for compacted granular fills.

Drainage time

The drainage time of unshrinkable fill depends greatly on the permeability of the depositional environment. Under optimal conditions, bearing capacity is achieved within approximately one hour. In order to obtain good bearing capacity, the water contained in the fill must be evacuated quickly. It is necessary to avoid the use of unshrinkable fill in a non-draining environment, during heavy rains or if there is an accumulation of water in the trench. Since unshrinkable fill is not a concrete, there is no setting time and conventional ways of accelerating setting do not apply.

Mechanical properties

The compressive strength of unshrinkable fill is below 1 MPa. Typical compressive strength values are in the order of 0.4 to 0.8 Mpa. This level of compressive strength ensures the stability of the fill while allowing for its future excavation.

Applications

- Filling trenches
- Filling culverts
- Filling under floors
- Filling retaining walls
- Replacement of granular foundations
- Wherever soil fill is used.



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