



UNIGEL™

The solution for cold-weather concreting

Unigel™ is a concrete specifically developed for placement at cold temperatures of up to -5 °C. In fact, this type of concrete can be poured without heating, provided certain conditions are respected (see recommendations).

Placement

The placement of Unigel™ concrete uses conventional equipment, i.e., pump, concrete bucket or directly from the concrete mixer. Unigel™'s characteristics require its placement within a maximum of 90 minutes after mixing.

Mechanical properties

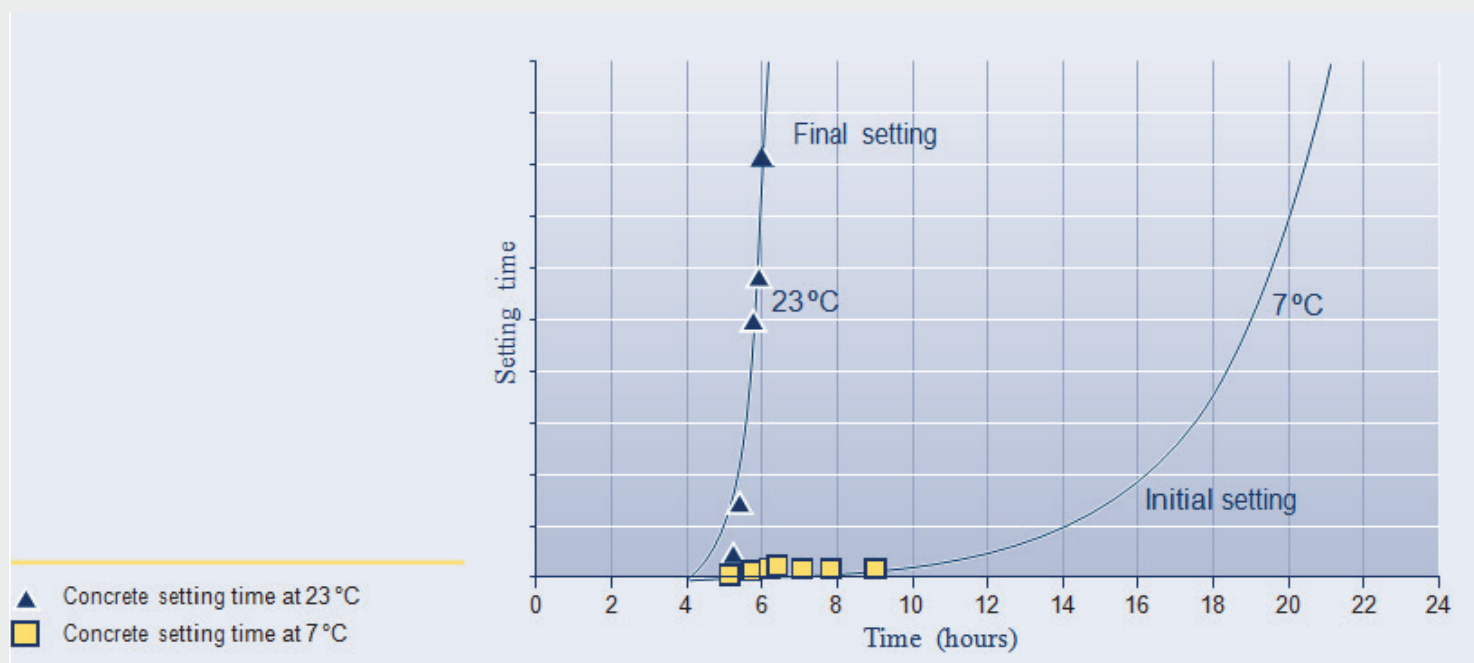
Unigel™ is available in several distinct formulas. It is produced in strengths of 25, 30, 32 and 35 MPa, with or without entrained air, for standard ambient temperatures of 5 °C, 0 °C and -5 °C. The standard ambient temperature is determined as the minimal temperature from the start of the pouring till 8 hours following the end of concreting.

Fluidity

Unigel™ is formulated using the latest generation of admixtures, allowing it to be placed with no adjustments on the work site. Slump at the point of delivery is 120 +/- 30 mm.

Setting time

The concrete's setting time is highly influenced by the ambient temperature, as shown in the graph below. The initial setting time for concrete with a temperature of 7 °C is approximately 14 hours while its setting time, if the temperature remains at 23 °C, is in the order of 5 hours. Under certain conditions, Unigel™'s specific formulation makes it possible to achieve a setting time in cold weather up to -5 °C, similar to that of a concrete submitted to a temperature of 20 °C



Recommendations

The usual procedures for concreting in cold weather, as described in the CSAA23.1-09 standard, apply at all times. Consequently, it is necessary to protect the concrete from the elements using screens, covers, etc.

- The concrete must be placed within 90 minutes after leaving the plant.
- The minimum quantity to be ordered is 5 m³ in order to limit heat loss in transit.
- The minimum thickness of the structure must be 150 mm.
- The concrete must be protected against snow and rain during placement and finishing.
- The formwork or foundation must not be frozen, iced or snow-covered.
- Ensure a reasonable delivery schedule to avoid waiting time on the work site.

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