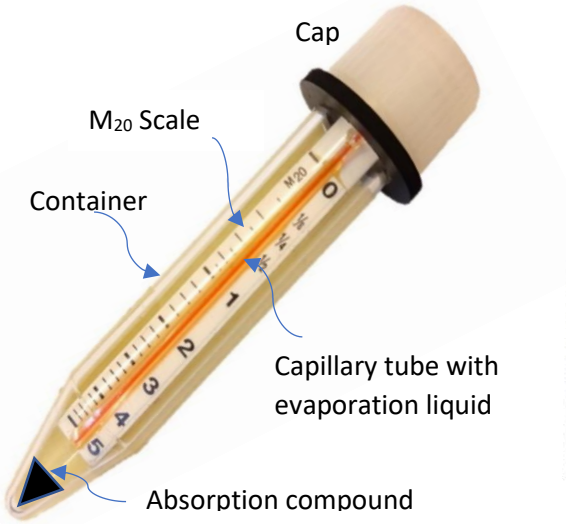
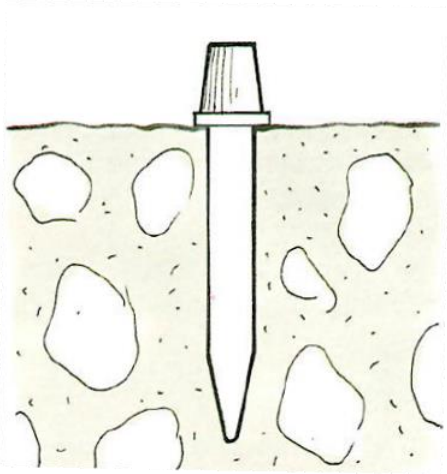
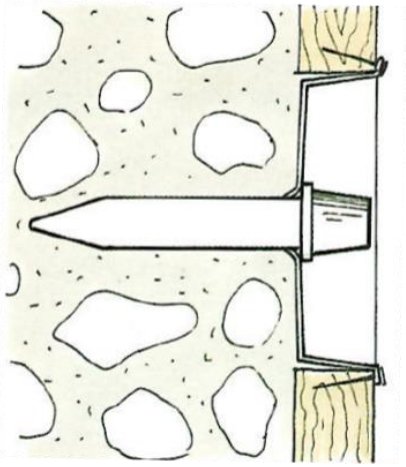
COMA-Meter, the simple way of measuring maturity

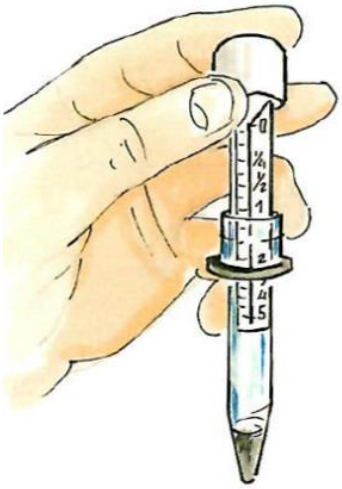
Without Electronics !







Installation examples



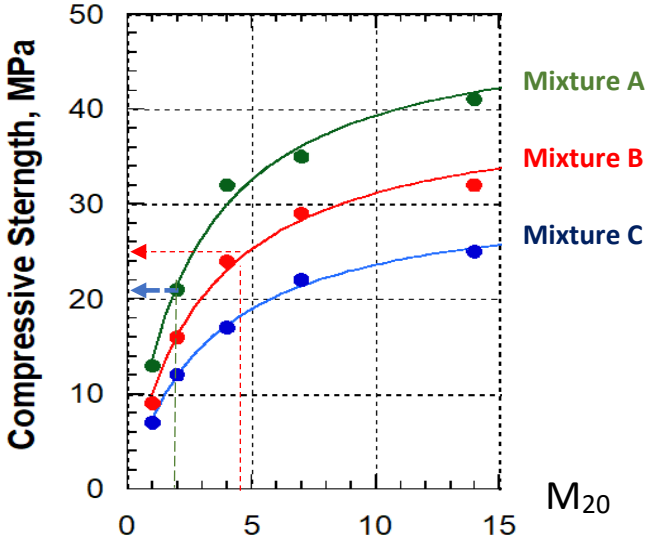
Break capillary tube at Zero

Press meter in fresh concrete

Read Maturity whenever required

For mix A

~22 MPa

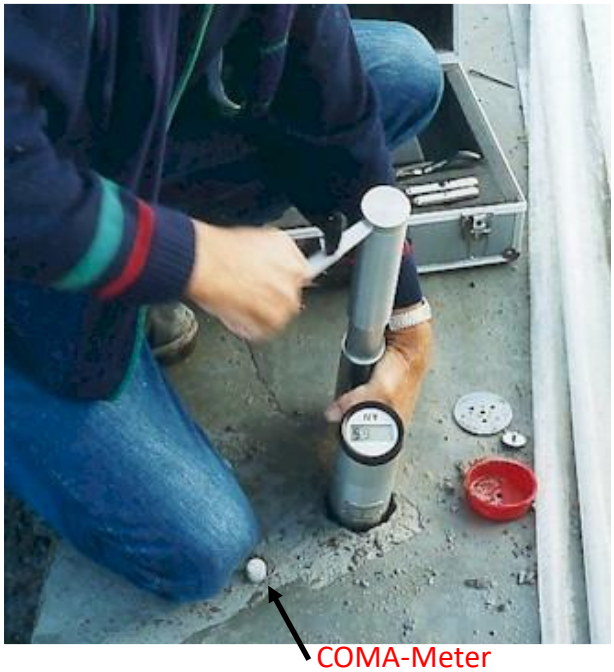


Example:

After 1.0 actual days the M_{20} is measured as 1.9 days at 20 ^{0}C and the corresponding strength estimated to be ~ 22 MPa for mixture A, following the pre-established laboratory strength – maturity relationship for mix A.

For timing of critical early and safe loading operations the COMA-Meter is used in conjunction with a reliable test system for in-place strength, that is the LOK-TEST or CAPO-TEST pullout testing (ASTM C 900).

The mix calibrated in the laboratory is based on compression of specimens perfectly consolidated and cured in water for perfect hydration (which is not the case with the structure), and it is assumed that the mix in the laboratory is identical to the mix used on site.



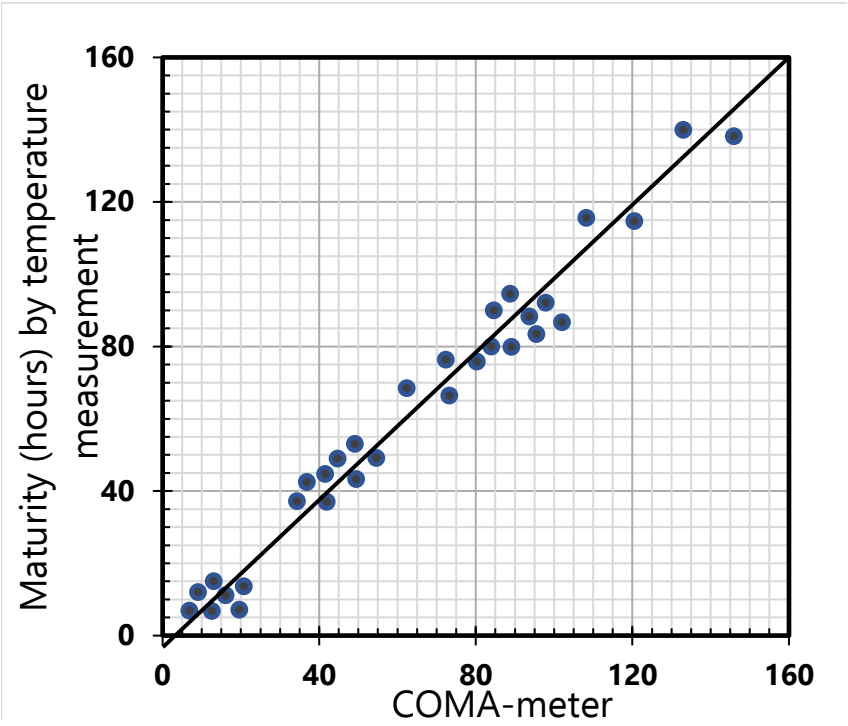
Example

Industrial floor utilizing Mixture B above. The required strength before loading of trucks was 25 MPa. After 2.5 actual days the COMA-Meter read 4.5 M_{20} days indicating strength (red lines) at 25 MPa.

Actual in-situ strength was measured with LOK-TEST. The strength in-place was 23.2 MPa. It was decided to wait for another half a day before loading the floor.

Calibration in-place had in this manner taken place, not relying on laboratory cylinders only, but on in-situ actual strength, using maturity as a strength indicator and LOK-TEST as the real in-place strength measurement.

Technical details



Calibration of the COMA-Meter, Göran Möller: Evaluation of COMA-Meter, Report Nr 8335, CBI (Cement and Beton Institutet), Sweden

As shown, the COMA-Meter gives same maturity as measured by direct temperature measurement

Technical specifications

Activation energy 40kJ |
Arrhenius Equation for maturity

Storage temperature 20^0C
Operating temperatures 0 to $+60^0$C
Variation 2%

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