TECHNICAL SPECIFICATIONS

Proper Field Testing Of Ready Mixed Concrete

RMCAO

Summaries of Canadian Standards Association CSA A23.2-04 "Methods of Test and Standard Practices for Concrete"

- **A23.2-1C – Sampling**
- **A23.2-3C – Cylinders**
- **A23.2-4C – Air Test**
- **A23.2-5C – Slump of Concrete**

Prepared for the Test Laboratories, Contractors, Owners, Architects, Engineers, Government Agencies, and Concrete Producers

THE Power of Concrete

Sampling of Plastic Concrete

A23.2-1C

General

- avoid segregation
- complete diversion of concrete from chute
- between 10 and 90% of load

Sampling for Cylinders, etc.

- one grab sample

Sampling for Uniformity

- three samples, widely separated

Sample Size - Strength, Uniformity

- For three 100 x 200 mm cylinders = minimum 20 L each
- For three 150 x 300 mm cylinders = minimum 30 L each
- complete remix prior to test

Protection

- protect sample from sun, wind, and other sources of evaporation or contamination

Making and Curing of Concrete Compression and Flexural Specimens

A23.2-3C

Time Constraint

- complete within 20 min after sampling

Place of Moulding

- near as practicable to storage and immediately placed there

Cover

- immediately covered to prevent moisture loss

Rodding

- 10 mm diam. rod for 100 mm cylinders
- 20 x per 3 layers
- 16 mm diam. rod for 150 mm cylinders
- 25 x per 3 layers

Consolidation

- sides of mould tapped to close voids

Curing

- rigid horizontal surface
- cylinders stored in controlled environment that maintains temperature at 20 ± 5°C
- cover cylinders
- record maximum and minimum temperatures within curing enclosure

Demoulding

- normal 28 ± 8 hrs
- extended to maximum 76 hrs for concrete <35 MPa provided that:
  - stored in controlled environment that maintains temperature at 20 ± 5°C
  - cover cylinders
  - record maximum and minimum temperatures

Transport

- after proper time with protection

Air Content of Plastic Concrete by the Pressure Method

A23.2-4C

Time Constraint

- complete within 10 min after sampling

Calibration and Operation of Air Meter

- as per manufacturers' specifications

Rodding

- 25 x per 3 layers normal

Consolidation

- Tapped smartly 10 times per layer

Strikeoff, Cleaning, Measuring

- ensure a complete seal and prevent leakage

Air Content

- measure within the nearest 0.1%

Photo courtesy of RMCAO

Slump of Concrete

A23.2-5C

Time Constraint

- complete within 10 min after sampling

Location

- flat, moist, non-absorbent (rigid) surface

Filling

- 3 layers, 1/3 by volume each

Rodding

- 25 x per 3 layers
- 16 mm diam. rod

Consolidation

- NONE ALLOWED

Cone Lift/Removal

- approximately 5 x by steady straight upward lift

Slump

- record in millimetres to nearest 5 mm
- middle of original concrete specimen

FIELD TESTING CERTIFICATION

To comply to CSA A23.1/.2, all field testing personnel shall be certified.

A **CSA or ACI certificate** clearly stating name of individual, certified company of employment, date of expiry, and the tests for which the individual is certified shall identify all field test personnel.

IMPORTANT NOTE:

Concrete tests not sampled, made, cured and handled in accordance to CSA A23.1/.2 shall not be considered valid and ***will not be accepted by the Ready Mixed Concrete Producer.***

If there are any questions, or any occurrences of improper field-testing of concrete, please contact your Concrete Supplier or the Ready Mixed Concrete Association of Ontario.

Distribution of Cylinder Reports as per CSA A23.1 Clause 4.4.1.4.

THE Power of Concrete

Supported by

Cement Association of Canada
Association Canadienne du Ciment

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