

SAMPLING

MATERIALS AND TOOLS:



Black crayon, hammer, metric ruler, rag, scoop, slump base plate, slump cone, slump rod, spanner, steel trowel, temperature-controlled curing tank (22° - 25°), thermometer, wheelbarrow, wire brush.

SAMPLING OF AGGREGATES:

Key facts on random samples:

- Testing a sample is key to a successful outcome.
- If the reduction of the sample doesn't represent the stockpile the information received from the test will have no use.
- Therefore it's essential that a representative sample is obtained.
- Using a steel float strike off the surface of the concrete so that it's level with the top of the mould.
- On a paper label, using a pencil, write the following on each cube: company name, contact/reference number and date of test.

SAMPLING OF AGGREGATES IS ACHIEVED THROUGH:

- Sampling from a stockpile.
- Sampling from a moving conveyor.

SAMPLING FROM A STOCKPILE:

- Sampling from a stockpile.
- Sampling from a moving conveyor.
- Remove the outer 150mm of material before sampling.
- Do not sample 330mm from the bottom of the pile.

SAMPLING FROM A MOVING CONVEYOR:

- Stop the conveyor belt at defined intervals.
- Select a sample from the full width of the conveyor, ensuring that:
 - i. The sample is moist.
 - ii. The sample includes materials such as the fines.
- Use a sample splitter (riffle box) or cone and quarter the sample.

USING A SAMPLE SPLITTER (RIFFLE BOX):

- The sample is halved through a riffle box.
- One half is discarded while the other passes through, reducing the size until the required outcome is achieved.



CONING AND QUARTERING:

1. Mix the sample fully until a heaped cone is formed.
2. Flatten the cone until a uniform depth is formed after cutting the sample into quarters.
3. Remove opposite quarters and mix the remaining quarters.
4. Repeat until the sample size is achieved.

SAMPLING OF CEMENT:

- Use only cement that complies with SANS 50197.
- When sampling, cement the sample size should be +/-20kgs – kept in an airtight, durable plastic bag.
- If the sample size needs to be reduced in size, ensure it's homogenised before splitting.
- A note should be made of the manufacturer and factory name as well as the full specification of the cement and/or extender.
- A 50kg bag of the cement must be requested from each of the sources as a sample.

SAMPLING OF FRESH CONCRETE:

- For every 50m³ of concrete a full sample set of 1.5 times the quantity must be taken for testing.
- The sample should be taken from a moving stream and shouldn't be allowed to freefall more than 500mm.

SAMPLING FROM TRUCK MIXERS:

- Truck mixers should mix concrete at full speed for at least 5 minutes before sampling.
- The first 15% of the load must be discharged before sampling.
- Don't sample the last 15% of the load.
- Sampling must be carried out at equally-spaced intervals from a moving chute at least 500mm from the end of the chute.
- A minimum of nine samples must be taken and then mixed together to form a uniform sample.



SAMPLING FROM DUMP TRUCKS:

- When sampling direct from dumpers the top surface of concrete should be moved.
- Random samples are taken with a shovel over the surface of the concrete.
- A minimum of nine samples must be randomly taken from the concrete surface and mixed together to form a uniform sample.

SAMPLING IN A LAB:

- Sample increments should be taken from a lab mixer at six equally-spaced points 50mm from the circumference of the pan.
- Take a further three points near the centre of the pan.
- Mix all increments together to ensure a uniform sample.
- Extract test specimens from the composite sample.

