



British Standard

Methods of testing cement

Part 1. Sampling

Méthodes d'essai du ciment
Partie 1. Echantillonnage

Prüfverfahren für Ziment
Teil 1. Probenahme

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IMPORTANT NOTE. It is recommended that this Part be read in conjunction with the information in Part 0 'General introduction' to BS 4550, which is issued separately.

Foreword

This British Standard has been prepared under the direction of the Cement, Lime and Gypsum Products Standards Committee. This Part brings together, revises and simplifies the methods of sampling described in clauses of the following British Standards.

- BS 12 : Part 2 : 1971 Portland cement (ordinary and rapid hardening)
- BS 146 : Part 2 : 1973 Portland-blastfurnace cement
- BS 915 : Part 2 : 1972 High alumina cement
- BS 1370 : Part 2 : 1974 Low heat Portland cement
- BS 4027 : Part 2 : 1972 Sulphate-resisting Portland cement
- BS 4246 : Part 2 : 1974 Low heat Portland-blastfurnace cement
- BS 4248 : 1974 Supersulphated cement
- BS 5224 : 1976 Masonry cement

This Part of this standard introduces the use of a sampling tube and a sampling ladle and the requirement for a certificate of sampling.

A method of sampling by the bleeding off of sub-samples during discharge has not been adopted as it has been found to give non-representative samples of cement.

As part of BSI's programme of metrication this standard is expressed in metric terms.

Part 0 of BS 4550 is a general introduction; Part 2 describes methods of chemical testing of cement; Part 3 describes methods of physical testing of cement; Part 4 specifies the standard coarse aggregate for concrete cubes; Part 5 specifies the standard sand for concrete cubes and Part 6 specifies the standard sand for mortar cubes. Publication of BS 4550 enables the standards listed in the previous paragraph to be revised by deletion of the relevant clauses. This will avoid repetition in the expanding range of cement standards and ensure that, if any changes are made in any of the sampling methods, the standards remain in step.

British Standards Institution

Gr 3

BS 4550 : Part 1 : 1978

1. Scope

This Part of this British Standard describes methods for obtaining samples of cement for test purposes from deliveries.

The sampling situations covered by this standard are:

- cement in bags, drums or other packages;
- cement in bulk-delivery vehicles;
- cement on discharge from a storage silo.

2. General

Samples shall be taken using clean, dry equipment and shall be stored in clean, dry, airtight sample containers.

3. Size of samples

Samples shall be of 7 kg minimum mass taken in accordance with clause 5.

4. Representation

The quantity of cement represented by a sample shall not normally exceed 21 t.

When the mass of cement in any container exceeds 21 t, special arrangements, based on the general principles of the sampling methods described in this standard, shall be agreed between the parties concerned.

5. Sampling methods

5.1 Cement in bags, drums or other packages. Samples shall consist of at least five sub-samples obtained, if possible, from different containers. The containers to be sampled shall be selected by:

- (a) allocating, in a systematic order, a number to each container in the delivery;
- (b) dividing the total number of containers by the number of sub-samples required to identify different parts of the delivery;
- (c) selecting, at random from each part, a container to be sampled.

When there are fewer than five containers, each container shall be sampled and approximately the same quantity of cement shall be taken from each container.

The use of a sampling tube is preferred.

5.1.1 Sampling by sampling tube. A suitable form of tube is shown in figure 1. Marks on the collars of both tubes

correspond to the centre line of the slots so that, when the mark on the inner tube is lined up with the mark on the outer tube, the slots are open.

The closed sampling tube shall be inserted into an opened container and driven into the cement. The tube shall then be opened and rotated until it takes a full core of cement from substantially the entire length of the container.

5.1.2 Sampling by other methods. When no sampling tube is available, the container shall be opened and a sub-sample taken by means of a scoop or other appropriate tool.

5.2 Cement in a bulk-delivery vehicle. A sample shall be obtained by use of a sampling ladle. A suitable form of ladle is shown in figure 2.

Before any cement is discharged, the inspection cover on the top of the delivery vehicle shall be removed.

The top 150 mm (approximately) of the cement shall be scraped aside. The exposed surface shall be sampled by ladling from it a sufficient number of sub-samples. The ladle shall not be overfilled and care shall be exercised to avoid loss of any part of a sub-sample when transferring it from the ladle to the sample container.

5.3 Cement from the discharge of a storage silo.

A sub-sample shall be obtained from the silo discharge by use of a scoop or other appropriate tool. At least three sub-samples shall be taken evenly spaced through the discharge from the silo. The sub-samples shall be combined to form the sample.

A sample of cement taken from a silo shall be taken as representing only the quantity of the cement discharged at the time of sampling. It shall not be taken as representing a particular batch or delivery of cement to the silo unless the silo is known to contain no other cement.

6. Storage and delivery of samples

Immediately after being taken, the sample shall be stored in a clean, dry, airtight container made of metal or glass. The volume of air remaining in the filled container shall be the minimum practicable.

7. Certificate of sampling

The sample shall be accompanied by a certificate of sampling on which shall be recorded information identifying the material and the method of sampling. The general form of certification is shown in figure 3.