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Method of sampling fresh concrete

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Foreword

This Japanese Industrial Standard has been revised by the Minister of Land, Infrastructure, Transport and Tourism through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by Japan Concrete Institute (JCI) with a draft being attached, based on the provision of Article 12, paragraph (1) of the Industrial Standardization Act applied mutatis mutandis pursuant to the provision of Article 16 of the said Act. This edition replaces the previous edition (**JIS A 1115**:2014), which has been technically revised.

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NOTE Based on Article 9 of the Supplementary Provisions to the Unfair Competition Prevention Act etc., any submission of proposal, or employment of procedures such as deliberation by the Japanese Industrial Standards Committee under the previous Industrial Standardization Act shall be deemed to have been conducted pursuant to the provision of Article 12, paragraph (1) of the revised Industrial Standardization Act.

Method of sampling fresh concrete

Introduction

This Japanese Industrial Standard has been prepared based on **ISO 1920-1:2004**, Edition 1, with some modifications of the technical contents.

The dotted underlines indicate changes from the corresponding International Standard. A list of modifications with the explanations is given in Annex JB. The comparison table between previous and current editions of this Standard on technically significant revisions is given in Annex JC.

1 Scope

This Japanese Industrial Standard specifies the procedures for sampling of fresh concrete from mixers, hoppers, concrete transport equipment or placed concrete.

NOTE The International Standard corresponding to this Standard and the symbol of degree of correspondence are as follows.

ISO 1920-1:2004 *Testing of concrete—Part 1: Sampling of fresh concrete* (MOD)

In addition, symbols which denote the degree of correspondence in the contents between the relevant International Standard and **JIS** are IDT (identical), MOD (modified), and NEQ (not equivalent) according to **ISO/IEC Guide 21-1**.

2 Sample

2.1 General

The general requirements of samples shall be as follows.

- a) Sample shall be obtained by taking increments¹⁾ of approximately equal quantity from at least three points of the concrete to be tested, depositing them into a container made from non-absorbent material, and mixing them with a shovel, scoop, or trowel until uniform.
- b) Where multiple samples are required to test the variation of concrete properties, increments may be used as individual samples.
- c) The samples shall be supplied for testing immediately after mixing. Until completion of testing, samples shall be handled quickly while ensuring freedom from exposure to sunlight, wind, or other conditions. The samples shall be protected, as necessary, against loss of moisture or extreme variations of temperature.

NOTE Samples with the maximum coarse aggregate size above 40 mm may be used after removing particles larger than 40 mm by means of a 40 mm mesh sieve. The 40 mm sieve to be used for this purpose is the metal wire cloth with 37.5 mm nominal aperture specified in **JIS Z 8801-1**.

Note¹⁾ Increments are individual quantities of concrete taken from specified parts of the concrete to be tested.

2.2 Sample quantity

The sampled quantity shall be 20 L or more in principle, and at least 5 L more than the quantity required for test. It may be less than 20 L if increments are used as individual samples.

2.3 Procedure for taking increments

Increments shall be taken in such a way that they represent the concrete to be tested. See Annex JA for examples of procedures.

3 Test report

The report shall include the following information.

a) Information to be always included

- 1) Date of sampling
- 2) Weather conditions
- 3) Ambient temperature
- 4) Number, distribution and sampling intervals of increments
- 5) Sampling procedure used
- 6) Batch number or transport vehicle number
- 7) Sampling point in the case of concrete placed in a structure (see **JA.7**)

b) Information to be included as required

- 1) Mix proportion of concrete
- 2) Temperature of concrete

Annex JA (informative)

Procedures for taking increments

JA.1 Sampling from a mixer

Use one of the following procedures.

- a) Take increments from at least three points of the falling concrete stream during the middle part of the discharge from the mixer, while carefully avoiding any portion with segregation.
- b) Stop the rotation of the mixer, and take increments from at least three points of the concrete inside the mixer. This sampling shall normally be done without the sampler being inside the mixer or hopper, unless safety measures in accordance with **5.2.3** and **5.4.1** of **JIS A 8613** have been provided against the inadvertent starting of the mixer.
- c) Deposit one batch of concrete into a container, and take increments from at least three points of the container.

If sampling for testing the variability of freshly mixed concrete by measuring mortar and coarse aggregate contents, use the procedure described in Clause 4 of **JIS A 1119**.

JA.2 Sampling from a truck agitator

Obtain at least three increments from the discharge from the truck at regularly spaced intervals, taking each increment from the entire cross-section of the falling stream while making sure each time that the stream is free from segregation. For this sampling, the rate of discharge from the truck shall be regulated by the rate of revolution of the drum. The very first and last portions of the discharge shall be disregarded.

Where this sampling method is not applicable, e.g. if sampling is performed to test the variation of concrete properties for the purpose of the concrete plant's process control or at the point of discharge, the following procedure may be used instead: rotate the drum at a high speed for about 30 s immediately before sampling, and after disregarding the first 50 L to 100 L, take increments from the entire cross-section of the continuous discharge from the chute, and use them as individual samples.

JA.3 Sampling from a concrete pump

Obtain at least three increments at regularly spaced intervals from the entire cross-section of the falling stream from the discharge pipe that is regarded as equivalent to one truck full of concrete or one batch, or from at least three points of a discharged concrete heap. In the case of sampling from a discharged heap where segregation is more likely to occur, take increments from as many points of the heap as possible.

JA.4 Sampling from a hopper or a bucket

Take increments from at least three points of the falling concrete stream during the middle part of the discharge from the hopper/bucket, while ensuring, before taking each increment, that the stream is free from segregation.