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Ready-mixed concrete

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In the event of any doubts arising as to the contents,
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Foreword

This Japanese Industrial Standard has been revised by the Minister of Economy, Trade and Industry, through deliberations at the Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law.

Consequently **JIS A 5308**:2014 is replaced with this Standard.

However, **JIS A 5308**:2014 may be applied in the **JIS** mark certification based on the relevant provisions of Article 19 Clause 1, etc. of the Industrial Standardization Law until September 19, 2019.

Attention is drawn to the possibility that some parts of this Standard may conflict with patent rights, applications for a patent after opening to the public or utility model rights. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying any of such patent rights, applications for a patent after opening to the public or utility model rights.

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Ready-mixed concrete

Introduction

This Japanese Industrial Standard was established in 1953 and has gone through 13 revisions including this one. The last revision was made in 2014, and this revision is intended to reflect the recent advances in technology and environmental considerations.

No corresponding International Standard has been established at this point. The comparison table between previous and current editions of this Standard on technically significant revisions is given in Annex H.

1 Scope

This Standard specifies the requirements for the ready-mixed concrete (hereafter referred to as ready-mixed concrete) delivered to the point of discharge. However, this Standard does not specify transportation, placing and curing of the concrete after delivery.

2 Normative references

The standards given in Table 13 contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) shall be applied.

3 Terms and definitions

For the purposes of this Standard, the terms and definitions given in **JIS A 0203**, and the following apply.

3.1

chloride content

chloride ion content brought about from material at the time of manufacture of ready-mixed concrete, expressed in kilogrammes per cubic meter of concrete (kg/m^3)

3.2

total alkali content

sum total of quantity of sodium ion and potassium ion brought about from material at the time of manufacture of ready-mixed concrete, which is converted into equivalent sodium oxide in molarity, expressed in kilogrammes per cubic meter of concrete (kg/m^3)

3.3

recycled water

generic term for sludge water and supernatant water obtained by treating the wastewater generated in washing of each of the fresh mortar adhering to and the fresh concrete remaining in the transport vehicle and the mixer, hopper, etc. of the plant, and of the returned concrete (hereafter referred to as concrete washing wastewater) among the wastewater generated in washing operations in ready-mixed concrete plants

3.4

sludge water

suspension water recovered from the concrete washing wastewater by removing the coarse aggregates and fine aggregates, including stabilized sludge water specified in **3.11**

3.5

supernatant water

water obtained by removing the sludge solids from sludge water by precipitation or other means

Water from stabilized sludge water is not included; however, it may be included in supernatant water when a control method [1)] is developed, in which the components of stabilizer specified in **3.9** are taken as indices, and when it is confirmed to conform to the requirements given in Table C.2

Note [1)] An example of the control method is ion chromatography.

3.6

sludge

substance produced from sludge water through concentration and loss of fluidity

3.7

sludge solids

sludge dried at 105 °C to 110 °C

3.8

sludge solids content

the ratio in percentage of the mass of sludge solids to the quantity of cement per unit volume of concrete in the mix proportion of ready-mixed concrete

3.9

stabilizer

an agent which restrains and stabilizes the progress of the hydration reaction of cement included in both adhering mortar and sludge water for the purpose of reuse

3.10

adhering mortar

fresh mortar adhering to the drum wall, blades, etc., of a truck agitator which has discharged the entire volume of concrete

3.11

stabilized sludge water

suspension water recovered from the concrete washing wastewater to which predetermined quantity of stabilizer is added, by removing the coarse aggregates and fine aggregates

4 Type, classification and designation of products

4.1 Type and classification

The types of ready-mixed concrete covered in this Standard are normal-weight concrete, lightweight concrete, concrete for pavement and high-strength concrete. Each type of concrete is classified according to the maximum coarse aggregate size, slump/slump flow, and nominal strength; the applicable combinations of these are indicated with ○ marks in Table 1.

The nominal strength of high-strength concrete may be an integer between ○ marks given in Table 1 or an integer over 45 to and excluding 50.

Table 1 Type and classification of ready-mixed concrete

Type of concrete	Maximum coarse aggregate size mm	Slump/slump flow [a] cm	Nominal strength													
			18	21	24	27	30	33	36	40	42	45	50	55	60	Flexure 4.5
Normal-weight concrete	20, 25	8, 10, 12, 15, 18	○	○	○	○	○	○	○	○	○	○	–	–	–	–
		21	–	○	○	○	○	○	○	○	○	○	–	–	–	–
		45	–	–	–	○	○	○	○	○	○	○	–	–	–	–
		50	–	–	–	–	–	○	○	○	○	○	–	–	–	–
		55	–	–	–	–	–	–	○	○	○	○	–	–	–	–
		60	–	–	–	–	–	–	–	○	○	○	–	–	–	–
	40	5, 8, 10, 12, 15	○	○	○	○	○	–	–	–	–	–	–	–	–	–
Lightweight concrete	15	8, 12, 15, 18, 21	○	○	○	○	○	○	○	○	–	–	–	–	–	–
Concrete for pavement	20, 25, 40	2.5, 6.5	–	–	–	–	–	–	–	–	–	–	–	–	–	○
High-strength concrete	20, 25	12, 15, 18, 21	–	–	–	–	–	–	–	–	–	–	○	–	–	–
		45, 50, 55, 60	–	–	–	–	–	–	–	–	–	–	○	○	○	–

Note [a] These are the values at the point of discharge, and 45 cm, 50 cm, 55 cm and 60 cm are the slump flow values.

In purchasing ready-mixed concrete, the purchaser shall specify the items of **a**) to **d**) upon agreement with the producer. The purchaser may, where necessary, specify the items of **e**) to **q**) upon agreement with the producer. The items of **a**) to **h**) shall be specified within the range given in this Standard.

a) Type of cement

b) Type of aggregate

c) Maximum coarse aggregate size

d) Restraining measures for alkali-silica reaction

e) Classification by alkali-silica reactivity of aggregate

f) Class of water, when nominal strength exceeds 36