

JIS

JAPANESE INDUSTRIAL STANDARD

Sodium Silicate



JIS K 1408-1966

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Translated
by
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Sodium Silicate

K 1408-1966

 $\text{Na}_2\text{O} \cdot n\text{SiO}_2 \cdot x\text{H}_2\text{O}$

(Reaffirmed: 1979)

1. Scope

This Japanese Industrial Standard specifies the sodium silicate as industrial chemical.

2. Quality

The sodium silicate shall be tested in accordance with Clause 4, and the test results shall meet the requirements below:

Classification Item	No. 1	No. 2	No. 3	Sodium metasilicate	
				Class 1	Class 2
Appearance	Colourless or light colour liquid like starch syrup			White powder or granule	White crystals
Specific gravity (15°C BÉ)	-	54 min.	40 min.	-	-
Silicon dioxide (SiO ₂) %	35 to 38	34 to 36	28 to 30	27.5 to 29	19 to 22
Sodium oxide (Na ₂ O) %	17 to 19	14 to 15	9 to 10	28.5 to 30	20 to 22
Iron (Fe) %	0.03 max.	0.03 max.	0.02 max.	-	-
Water-insoluble matter %	0.2 max.	0.2 max.	0.2 max.	-	-

Remark: Class 1 sodium metasilicate is of pentahydrate and Class 2 is of nonahydrate.

Reference Standards: see page 12.

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3. Sampling Method

Samples shall be taken so as to represent the whole by a rational plan agreed upon between the parties concerned in acceptance.

4. Test Methods

4.1 General Matters The general matters common to chemical analyses shall be as specified in JIS K 0050.

4.2 Specific Gravity

4.2.1 Summary Measure specific gravity with a hydrometer for heavy Baumé degree.

4.2.2 Apparatus and Implements

- (1) Hydrometer for Heavy Baumé Degree The hydrometer for heavy Baumé degree, hereinafter referred to as the "hydrometer", shall be as specified in JIS Z 8804 graduated to 0.2 or finer. It shall be rinsed thoroughly before use so that the meniscus appears clearly.
- (2) Thermometer Graduated to 1 deg or finer.
- (3) Cylinder It shall be made of glass, free from strains that might interfere with reading of the hydrometer, and shall have such size that, when the hydrometer is floated on the sample, its every part is 10 mm or more apart from the inside wall and bottom of the cylinder.
- (4) Stirring Stick It shall be useful for stirring the sample perfectly in the cylinder to make its specific gravity homogeneous.

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4.2.3 Operation

- (1) Put a proper quantity of the sample in the cylinder, and maintain it at 15° C.
- (2) Stir the sample thoroughly with the stirring stick, pick lightly the head of the hydrometer, and float it gently on the sample with care not to permit adherence of bubbles to it.
- (3) After the hydrometer gets still, push it into the sample by about two graduations, and free it.
- (4) After the hydrometer gets still, read the scale at the upper edge of the meniscus.
- (5) Repeat the operation of (3) and (4) above two or three times, and take the mean value as the Baumé degree.

Remark: Where the measurements are made at a temperature different from 15°C, an approximate Baumé degree at 15° C can be obtained by the formula below:

$$A = a - (15 - t) \times 0.04$$

where A : Baumé degree converted to that at 15° C

a : Baumé degree observed

t : temperature when measurements were made

0.04 : correction factor per degree of temperature variation