



JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS K 8625 : 2006

(JRA/JSA)

Sodium carbonate (Reagent)

ICS 71.040.30

Reference number : JIS K 8625 : 2006 (E)

PROTECTED BY COPYRIGHT

Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by Japan Reagent Association (JRA)/Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently **JIS K 8625**:1996 is replaced with this Standard.

This Standard has been made based on **ISO 6353-2**:1983 *Reagents for chemical analysis—Part 2: Specification—First series* for the purposes of making it easier to compare this Standard with International Standard; to prepare Japanese Industrial Standard conforming with International Standard; and to propose a draft of an International Standard which is based on Japanese Industrial Standard.

Attention is drawn to the possibility that some parts of this Standard may conflict with a patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have technical properties. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying the patent right, application for a patent after opening to the public, utility model right or application for registration of utility model after opening to the public which have the said technical properties.

Date of Establishment: 1950-11-10

Date of Revision: 2006-04-20

Date of Public Notice in Official Gazette: 2006-04-20

Investigated by: Japanese Industrial Standards Committee

Standards Board

Technical Committee on Chemical Analysis

JIS K 8625:2006, First English edition published in 2007-10

Translated and published by: Japanese Standards Association
4-1-24, Akasaka, Minato-ku, Tokyo, 107-8440 JAPAN

In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

© JSA 2007

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

Printed in Japan

PROTECTED BY COPYRIGHT

Contents

	Page
Introduction	1
1 Scope	1
2 Normative references	1
3 General matters	1
4 Classification	1
5 Properties	1
5.1 Characteristics	1
5.2 Qualitative test method.....	1
6 Quality	2
7 Test method	2
7.1 Guaranteed reagent	2
7.2 pH standard solution use	6
8 Container	7
9 Marking	7
Annex (informative) Comparison table between JIS and corresponding International Standard	8

Sodium carbonate (Reagent)



Introduction This Japanese Industrial Standard has been prepared based on the first edition of **ISO 6353-2** *Reagents for chemical analysis—Part 2: Specifications—First series* published in 1983 with some modifications of the technical contents.

The portions given continuous sideline or dotted underlines are the matters in which the contents of the original International Standard have been modified. A list of modifications with the explanations is given in Annex (informative).

1 Scope This Standard specifies the sodium carbonate to be used as a reagent.

NOTE : The International Standard corresponding to this Standard is as follows.

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**.

ISO 6353-2:1983 *Reagents for chemical analysis—Part 2: Specifications—First series* (MOD)

2 Normative references The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

JIS K 0116 *General rules for atomic emission spectrometry*

JIS K 0970 *Piston operated micro-volumetric apparatus*

JIS K 8001 *General rule for test methods of reagents*

JIS K 9901 *Highly purified nitric acid*

3 General matters The general matters of test method shall be in accordance with **JIS K 8001**.

4 Classification The classification shall be the guaranteed reagent and the reagent for pH standard solution.

5 Properties

5.1 Characteristics Sodium carbonate is white powder and has hygroscopicity. It easily dissolves in water, however hardly dissolves in ethanol.

5.2 Qualitative test method The qualitative test method shall be as follows.

- a) Add 10 ml of water to 0.5 g of the sample to dissolve and the property of solution is about pH 12. When 10 ml of hydrochloric acid (1+3) is added, it bubbles.

- b) Add 20 ml of water to 2 g of the sample to dissolve, and when it is tested in accordance with **5.29 (1)** of **JIS K 8001**, yellow colour appears.

6 Quality The quality, when tested in accordance with clause **7**, shall conform to table 1.

Table 1 Quality

Item		Specified value	
		Guaranteed reagent	pH standard solution use
Purity (Na_2CO_3) (after ignition)	mass fraction %	99.8 min.	99.8 to 100.0
Solubility with water		To pass test	To pass test
Ignition loss (600 °C)	mass fraction %	1.0 max.	1.0 max.
Sulfide, sulfite and thiosulfate		To pass test	To pass test
Chloride (Cl)	mass fraction %	0.002 max.	0.002 max.
Phosphate (PO_4)	mass fraction %	0.002 max.	0.001 max.
Silicate (expressed as SiO_2)	mass fraction %	0.005 max.	0.005 max.
Sulfate (SO_4)	mass fraction %	0.003 max.	0.002 max.
Nitrogen compound (expressed as N)	mass fraction %	0.001 max.	0.001 max.
Potassium (K)	mass fraction %	0.01 max.	0.01 max.
Copper (Cu)	mass fraction ppm	2 max.	2 max.
Magnesium (Mg)	mass fraction %	0.002 max.	0.002 max.
Calcium (Ca)	mass fraction %	0.005 max.	0.005 max.
Zinc (Zn)	mass fraction ppm	2 max.	2 max.
Aluminium (Al)	mass fraction %	0.001 max.	0.001 max.
Lead (Pb)	mass fraction ppm	2 max.	2 max.
Iron (Fe)	mass fraction ppm	5 max.	5 max.

7 Test method

7.1 Guaranteed reagent

7.1.1 Test conditions and test results The test conditions and test results shall be in accordance with **3.7 (1)** of **JIS K 8001**. Humidity control shall be carried out as occasion demands. The tests for each quality item specified in table 1 shall be carried out in accordance with the following each test method and the calculated values and operation results obtained shall be in accordance with **3.5** of **JIS K 8001**.

7.1.2 Purity (Na_2CO_3) (after ignition) Weigh out 1.0 g of the residue of **7.1.4** to the nearest 0.1 mg and add 20 ml of water to dissolve. Add 3 drops of bromophenol blue solution and titrate it with 0.5 mol/L hydrochloric acid. Expel carbon dioxide by boiling it in the vicinity of the end point, and titrate it after cooling. Take the point where the colour of solution turns from bluish purple to bluish green as the end point. In this case, 1 ml of 0.5 mol/L hydrochloric acid corresponds to 0.026 498 g of Na_2CO_3 .

7.1.3 Solubility with water The solubility with water shall be in accordance with **5.2 of JIS K 8001**. In this case, the sample shall be 2 g and (a) shall be used for the adaptability limit standard for turbidity.

7.1.4 Ignition loss (600 °C) Weigh out 2 g of the sample to the nearest 0.1 mg and ignite it at 600 °C for 60 min. Preserve the residue in a silica gel desiccator and use it for the test of **7.1.2**.

7.1.5 Sulfide, sulfite and thiosulfate Add 10 ml of water to 1 g of the sample to dissolve and add 0.10 ml of 2.5 mmol/L iodine solution⁽¹⁾ and 1 ml of starch solution to shake as keeping at about 15 °C. When 10 ml of hydrochloric acid (1+3) is gradually added to it, blue colour shall appear (expressed as S: about 0.001 % or less in mass fraction).

Note ⁽¹⁾ For the preparation of 2.5 mmol/L iodine solution, take 10 ml of 0.05 mol/L iodine solution accurately, put it in a 200 ml volumetric flask and add water up to the marked line.

7.1.6 Chloride (Cl) The preparation of solution and operation shall be as follows.

- a) **Sample side solution** Add gradually 10 ml of water and 10 ml of nitric acid (1+2) to 2.0 g of the sample and boil it gently until the bubbles of carbon dioxide have come not to produce. After cooling, add water to make up to 40 ml. Use 20 ml (1.0 g of the quantity of sample) of it for the test.
- b) **Standard side solution** Add 10 ml of water and 10 ml of nitric acid (1+2) to 4.0 ml of chloride standard solution (Cl: 0.01 mg/ml) and boil it gently for the same time as that of sample side solution. After cooling, add water to make up to 40 ml. Use 20 ml of it for the test.
- c) **Operation** The operation shall be in accordance with **5.7 (1) of JIS K 8001**.

7.1.7 Phosphate (PO₄) The preparation of solution and operation shall be as follows.

- a) **Sample side solution** Add gradually 20 ml of water and 12 ml of hydrochloric acid (2+1) to 4.0 g of the sample. Evaporate it to dryness on a water bath and add water to make up to 40 ml (Solution A) (Solution A is also used for the test of **7.19**). Make 10 ml (1 g of the quantity of sample) of Solution A to be the sample side solution and use it for the test.
- b) **Standard side solution** Evaporate 3 ml of hydrochloric acid (2+1) to dryness on a water bath, add 2.0 ml of phosphate standard solution (PO₄: 0.01 mg/ml) and add water to make up to 10 ml.
- c) **Operation** The operation shall be in accordance with **5.13 (3) (c) of JIS K 8001**.

7.1.8 Silicate (expressed as SiO₂) The preparation of solution and operation shall be as follows.

- a) **Sample side solution** Take 1.0 g of the sample in a 100 ml polyethylene beaker and add water to dissolve and make up to 20 ml.