



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB 31604.32-2016

**National food safety standard - Food contact materials and
products - Determination of heavy metals in food simulants
(English Translation)**

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Foreword

This standard replaces the determination of sulfur dioxide in SN/T 2827-2011

"Food contact materials for export - Wood materials - Determination of sulfur dioxide".

Compared with SN/T 2827-2011, the main changes of this standard are as follows.

- The standard name has been changed to "National food safety standard - Food contact materials and products - Determination of sulfur dioxide in wood materials";
- Modify "method summary" in Method I into "principles";
- Modify "results calculation and expression" in Method I into "analysis

results expression";

-- Modify the formula in Method I;

-- Modify "method summary" in Method II into "principles" and revise the text;

-- Modify "results calculation and expression" in Method II into "analysis results expression" and revise the text.

National food safety standard -

Food contact materials and products -

Determination of sulfur dioxide in wood materials

1 Scope

This standard specifies the determination methods for titration and colorimetry of sulfur dioxide in food contact wood (bamboo) materials.

This standard applies to the determination of sulfur dioxide in wood (bamboo) chopsticks, wood (bamboo) bowls, wood (bamboo) spoons and wood (bamboo) shovels.

Method I Titration

2 Principles

Acidify the sample in a closed vessel; heat and distill it to release sulfur dioxide therein. Use lead acetate solution to absorb the released substance. After absorption, use concentrated hydrochloric acid to acidify and then titrate with iodine standard solution. According to the consumed amount of iodine standard solution, calculate the content of sulfur dioxide in the sample.

3 Reagents and materials

Unless otherwise indicated, the reagents used in this method are analytical grade, the water is the grade-3 water specified in GB/T 6682.

3.2.1 Hydrochloric acid solution (1+1, volume ratio). TAKE 100mL of hydrochloric acid; carefully ADD it into 100mL of water; MIX it uniformly.

3.3 Standards

Iodine standard solution $[(2 \pm 1) I_2] = 0.1\text{mol/L}$. According to GB/T 601 prepare and standardize or commercialize products.

5.1 Sample preparation

USE electric planer or chainsaw to take 3mm thick out of the surface of the sample; CRUSH; PLACE it in a clean container. SEAL it as the sample and INDICATE the mark. During the operation of sample preparation, the sample shall be protected from sulfur dioxide contamination.

5.2 Distillation

WEIGH 5g of sample (accurate to 0.01g); PLACE it in 500mL round-bottomed flask.

5.3 Titration

ADD 10mL of hydrochloric acid and 1mL of starch indicator (10g/L) successively into iodine volumetric flask. After shake it well, USE iodine standard solution (0.01mol/L) to titrate until the solution turns blue and does not fade within 30 seconds.

6 Analysis results expression

The content of sulfur dioxide in the sample is calculated according to formula (1).

7 Precision

The absolute difference between two independent determinations obtained under repeatability conditions shall not exceed 10% of the arithmetic mean.

8 Others

The method detection limit is 10mg/kg.

9 Principles

Acidify the sample in a closed vessel; heat and distill it to release sulfur dioxide therein.

10 Reagents and materials

Unless otherwise indicated, the reagents used in this method are analytical grade, the water is the grade-3 water specified in GB/T 6682. The potassium mercuric tetrachloride solution is highly toxic. Wear rubber gloves when handling. If it splashes on the skin, rinse immediately with water.

10.2.1 Potassium mercuric tetrachloride absorber solution (0.04mol/L).

WEIGH 10.86g of mercuric chloride, 0.066g of disodium EDTA, 5.96g of potassium chloride, DISSOLVE it in water and DILUTE it to 1000mL.

10.2.2 Sulfamic acid solution (6g/L). WEIGH 0.6g of sulfamic acid and

DISSOLVE it in 100mL of water; PREPARE it before use.

10.2.3 Formaldehyde solution (2g/L). PIPETTE 1mL of formaldehyde; USE

water to dilute it to 200mL; STORE it in stoppered glass bottle; PREPARE it before use.

10.3.2 Sulfur dioxide standard working solution. According to the calculation

result of standardization, use potassium mercuric tetrachloride absorber solution (10.2.1) to dilute sulfur dioxide standard solution (10.3.1) to 1mL which is equivalent to 5µg of sulfur dioxide; STORE it at 0°C~4°C for 1 month.

11.7 Water bath kettle.

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