GB

NATIONAL STANDARD OF

THE PEOPLE'S REPUBLIC OF CHINA

GB 5009.237-2016

National standard for food safety -

Determination of pH value in food

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Foreword

This Standard replaces the determination of pH in GB/T 5009.45-2003 *Method for analysis of hygienic standard of fish and other aquatic products*, the determination of pH in GB/T 10786-2006 *Analytical methods of canned food*, and GB/T 9695.5-2008 *Meat and meat products - Measurement of pH*.

Compared with the substituted standards, the major changes in this Standard are as follows:

— CHANGE the standard name into "*National standard for food safety - Determination of pH value in food*"; and

— This Standard integrates the methods for determination of pH in food in GB/T 5009.45-2003 *Method for analysis of hygienic standard of fish and other aquatic products*, GB/T 10786-2006 *Analytical methods of canned food* and GB/T 9695.5-2008 *Meat and meat products - Measurement of pH*.

National standard for food safety - Determination of pH value in food

1 Scope

This Standard specifies the methods for determination of pH in meat and meat products, oysters in aquatic products, and canned food.

This Standard **is applicable to** the pH testing for the homogenized products and the pH non-destructive testing for the slaughtered carcasses and lean meat in meat and meat products, the pH determination for oysters in aquatic products, and the pH determination for canned food.

2 Principle

A glass electrode is used as a reference electrode, a calomel electrode or a silver-silver chloride electrode as a reference electrode. When the concentration of hydrogen ions in the sample or sample solution changes, the electromotive force between the indicator electrode and the reference electrode also changes, resulting in a DC potential (that is, potential difference). INPUT to an A/D converter through a preamplifier, in order to achieve the purpose of pH measurement.

3 Reagents and materials

Unless otherwise stated, the reagents used in this method are of analytical grade, and water is the tertiary water specified in GB/T 6682. Water used in the preparation of buffer solution shall be freshly boiled, or USE nitrogen free of carbon dioxide to remove carbon dioxide in the water.

3.1 Reagents

3.1.1 Potassium hydrogen phthalate [$KHC_6H_4(COO)_2$].

3.1.2 Potassium dihydrogen phosphate (KH_2PO_4).

3.1.3 Disodium (hydrogen) phosphate (Na_2HPO_4).

3.1.4 Potassium bitartrate ($KHC_4H_4O_6$).

3.1.5 Disodium citrate ($Na_2HC_6H_5O_7$).

For heterogeneous samples, PROCEED in accordance with Subclause 5.2.4.

5.2.2 Samples (only for meat and meat products)

ADD potassium chloride solution with 10 times the mass of the sample to be tested to a homogenized sample (SEE Subclause 5.1.1.3). USE a homogenizer to perform homogenization.

5.2.3 Determination of homogenized samples

TAKE a quantity of the sample that can immerse or embed the electrode. INSERT the electrode into the sample. ADJUST the temperature compensation system of the pH meter to the sample temperature. If the pH meter is not equipped with a temperature compensation system, the temperature of the sample to be determined shall be kept within the range of 20°C ± 2°C. DETERMINE by taking the steps suitable for the pH meter in use. After the reading display is stable, READ the value directly. Accurate to 0.01. PROCEED in accordance with Subclause 5.2.5.

The same prepared sample shall be determined at least twice.

5.2.4 Determination of heterogeneous samples

USE a knife or pin to punch a hole on the sample, so as not to damage the composite electrode.

ADJUST the temperature compensation system of the pH meter (4.2) to the sample temperature. If the pH meter is not equipped with a temperature compensation system, the temperature of the sample to be determined shall be kept within the range of 20°C ± 2°C. DETERMINE by taking the steps suitable for the pH meter in use. After the reading display is stable, READ the value directly. Accurate to 0.01.

Fresh meat is usually stored between 0°C and 5°C. A pH meter with a temperature compensation system is required for the determination. REPEAT the determination at the same point. REPEAT the determination at different points on the sample, if necessary. The number of determination points depends on the properties and size of the sample.

The same prepared sample shall be determined at least twice.

5.2.5 Electrode cleaning

USE degreasing cotton dipped with ether and ethanol successively to wipe the electrodes. RINSE with water eventually. STORE the electrodes as required by the manufacturer.

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