National Food Safety Standard of P. R. Of China

GB 5009.3—2010

National Food Safety Standard
Determination of Moisture in Foods

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Issued by **Ministry of Health of P. R. China**

Preface

This standard replaces GB/T 5009.3-2003 *Determination of Moisture in Foods* and GB/T 14769-1993 *Method for Determination of Moisture in Foods*.

The major changes in this standard compared with GB/T 5009.3-2003 are as following:

—— Add Karl-Fischer Method as " Method IV";

—— Revise the temperature range of direct drying method;

—— Clarify the units used for Method I and Method II;

—— Revise the application scope of hypobaric drying method.

The previous edition replaced by this standard:

—— GB/T 5009.3-1985、GB/T 5009.3-2003;

—— GB/T 14769-1993.

National Food Safety Standard
Determination of Moisture in Foods

1 Scope

This standard specifies the method for determination of moisture in foods.

Direct drying method in this standard is applicable to determine the moisture at 101 - 105 degree for products which do not contain volatile or slightly volatile substances such as grain and its products, aquatic products, soy products, dairy products, meat,stewed meat etc . It is not applicable to the sample with moisture content of less than 0.5g/100g.

Hypobaric drying method is applicable to determine the moisture for labile products such as sugar and monosodium glutamate. It is not applicable for candies consisting of other ingredients, such as milk candy and softgum candy. Meanwhile, this method is not applicable to the sample with moisture content of less than 0.5g/100g.

Distillation method is applicable to determine the moisture for products with volatile substances, such as fat and spices. It is not applicable to the sample with moisture content of less than 1g/100g.

Karl-Fischer Method is applicable to determine the moisture of various foods. Karl-Fischer volumetric method is applicable to the sample with moisture content higher than 1.0×10^{-3}g/100g and Karl Fischer coulometry Method is applicable to the sample with moisture content of higher than 1.0×10^{-5}g/100g.

Method I Direct Drying Method

2 Principle

Utilize the physical properties of the moisture in food to adopt volatilization method to determine weight loss of the sample drying under 101.3kPa (1 atm) at 101 ℃ ~ 105 ℃, including hydration moisture, part of crystalization moisture and substances that can volatize under these conditions. Calculate the moisture content using weighted values before and after drying.

3 Reagents and Materials

Unless otherwise noted, all the reagents used in this method are analytically purity

3.1 HCl (HCl): top-grade purity

3.2 NaOH (NaOH): top-grade purity.

3.3 HCl solution (6mol/L): Weigh 50mL HCl, dilute with water to 100mL.

3.4 NaOH solution (6mol/L): Weigh 24g NaOH, dissolve in water and dilute to 100mL.

3.5 Sea sand: Wash sea/river sand with water to remove the mud. Firstly boil the sand with HCl (as prepared 3.3) for 0.5h and thenneutralize with water. Then boil the sand with

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