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NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA

GB 5009.236-2016

**National Food Safety Standard - Animal and Vegetable
Fats and Oils - Determination of Moisture and Volatile
Matter**

食品安全国家标准 动植物油脂水分及挥发物的测定

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National Food Safety Standard - Animal and Vegetable Fats and Oils - Determination of Moisture and Volatile Matter

1 Scope

This Standard specifies two methods for the determination of moisture and volatile matter in animal and vegetable fats and oils.

In this Standard, Method I [sand bath (electric heating plate) method] is applicable to all animal and vegetable fats and oils. Method II (electric drying oven method) is merely applicable to non-dry fats and oils whose acid value is lower than 4 mg/g; it is not applicable to lauric acid type of oils (palm kernel oil and coconut oil).

Method I -- Sand Bath (electric heating plate) Method

2 Principle

Under the condition of $103\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$, heat up the test sample, till moisture and volatile matter completely dissipate. Then, determine the mass that the sample loses.

3 Instruments and Equipment

3.1 Analytical balance: division value: 0.001 g.

3.2 Plate: flat ceramic or glass plate; diameter: 80 mm/90 mm; depth: around 30 mm.

3.3 Thermometer: scale range shall at least be $80\text{ }^{\circ}\text{C} \sim 110\text{ }^{\circ}\text{C}$; length: around 100 mm; fastened mercury ball; with an expansion chamber on the top.

3.4 Sand bath or electric heating plate (room temperature $\sim 150\text{ }^{\circ}\text{C}$).

3.5 Dryer: contain effective desiccant.

4 Analytical Procedures

4.1 Sample Preparation

m_0 ---the mass of the plate and the thermometer, expressed in (g);

100---unit conversion.

The calculation result shall retain two decimal places.

6 Precision

The absolute difference of two independent determination results obtained under repeatability condition shall not exceed 10% of the arithmetic mean value.

Method II -- Electric Drying Oven Method

7 Principle

Same as Chapter 2.

8 Instruments and Equipment

8.1 Analytical balance: division value: 0.001 g.

8.2 Glass container: flat-bottom; diameter: around 50 mm; height: around 30 mm.

8.3 Electric drying oven: master control temperature: $103\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$.

8.4 Dryer: contain effective desiccant.

9 Analytical Procedures

9.1 Sample Preparation

In a pre-dried and pre-weighed glass container, in accordance with the predicted content of moisture and volatile matter in the sample, weigh-take 5 g or 10 g of sample, accurate to 0.001 g.

9.2 Sample Determination

Place the glass container, which holds the sample, into an electric drying oven at $103\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ for 1 h. Then, transfer it into a dryer; cool it down to room temperature. Weigh it, accurate to 0.001 g. Repeat the steps of heating, cooling down and weighing. The duration of every re-drying shall be 30 min, till the difference between two consecutive weighing (in accordance with the difference in the mass of the test

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