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

GB/T 5528-2008

**Animal and vegetable fats and oils -- Determination of moisture
and volatile matter content
(English Translation)**

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1 Scope

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

---Method A, using a sand bath or hotplate;

---Method B, using a drying oven.

Method A is applicable to all fats and oils.

Method B is applicable only to non-drying fats and oils with an acid value less than 4. It does not apply to lauric acid oils (palm kernel oil and coconut oil).

2 Normative References

The clauses in the following documents become clauses of this Standard through reference in this Standard. In terms of references with a specified date, all subsequent amendments (excluding corrigenda) or revisions do not apply to this Standard. However, parties to an agreement based on this Standard are encouraged to explore the possibility of adopting the latest versions of these documents. In terms of references without a specified date, the latest version applies to this Standard.

GB/T 15687 Animal and Vegetable Fats and Oils - Preparation of Test Sample (GB/T 15687-

2008, ISO 661:2003, IDT)

3 Terms and Definitions

The following terms and definitions are applicable to this Standard.

3.1

moisture and volatile matter content

When a sample is heated under the conditions of $103\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ specified in this Standard, the mass loss of the sample.

NOTE: moisture and volatile matter content is expressed in mass fraction.

4 Principle

Under the conditions of $103\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$, heat the test sample, until the moisture and volatile matter are completely dissipated, and determine the mass loss of the sample.

5 Sampling

This Standard does not stipulate the sampling method. It is recommended to adopt the method of GB/T 5524.

Samples received by the laboratory shall be representative and shall not be damaged or deteriorated during transportation and storage.

6 Preparation of Test Sample

Comply with the method specified in GB/T 15687.

7.1 Instruments

Commonly used laboratory instruments, as well as the following.

7.1.1

Analytical balance

With a division value of 0.0001 g.

7.1.2

Dish, made of porcelain or glass, with a flat bottom, 80 mm ~ 90 mm in diameter, about 30 mm in depth.

7.1.3

Thermometer, with a scale range of at least 80 °C ~ 110 °C, about 100 mm in length, with a reinforced mercury bulb and with an expansion chamber at its upper end.

7.1.4

Sand bath or electric hotplate.

7.1.5

Desiccator, containing an efficient desiccant.

7.2.1 Preparation of test sample

In a dish (7.1.2) that has been pre-dried and weighed together with the thermometer (7.1.3), weigh-take about 20 g of the test sample, accurate to 0.001 g.

7.2.2 Determination

Heat the dish containing the test sample (7.2.1) to 90 °C on a sand bath or electric hotplate (7.1.4), and control the heating rate at about 10 °C/min. While heating, use the thermometer to stir it.

Reduce the heating rate and observe the rise of bubbles at the bottom of the dish. Control the temperature to rise to 103 °C $\pm$ 2 °C, and make sure it does not exceed 105 °C. Continue stirring, until no bubbles are released from the bottom of the dish.

To ensure that the moisture is completely dissipated, repeat the steps of heating to 103 °C $\pm$ 2

°C and cool to 90 °C several times. Place the dish and thermometer in the desiccator (7.1.5), cool to room temperature, and weigh it, accurate to 0.001 g. Repeat the above operation, until two consecutive results do not exceed 2 mg.

7.2.3 Number of determinations

For the same test sample, conduct two determinations.

8.1 Instruments

Commonly used laboratory instruments, as well as the following.

8.1.1

Analytical balance

With a division value of 0.001 g.

8.1.2

Glass container

With a flat bottom, about 50 mm in diameter, and about 30 mm in height.

8.1.3

Electric drying oven

With the main control temperature of $103\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$.

8.1.4

Desiccator, containing an efficient desiccant.

8.2.1 Preparation of test sample

In a pre-dried and weighed glass container (8.1.2), in accordance with the expected moisture and volatile matter content of the test sample, weigh-take 5 g or 10 g of test sample, accurate to 0.001 g.

8.2.2 Determination

Place the glass container containing the test sample (8.2.1) in the electric drying oven (8.1.3) at

$103\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ for 1 hour, then, transfer it into the desiccator (8.1.4), cool to room temperature, and weigh it, accurate to 0.001 g. Repeat the steps of heating, cooling and weighing. Each re- baking time is 30 minutes, until the difference between two consecutive weighings respectively does not exceed 2 mg or 4 mg, depending on the mass of the test sample (8.2.1).

NOTE: the mass of the sample increases after repeated heating, indicating that the fat or oil has auto oxidized. At this time, take the minimum value to calculate the result, or use Method

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