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**Inspection of vegetable oils - Methods for determination of
specific gravity**
植物油脂检验 比重测定法

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Inspection of vegetable oils - Methods for determination of specific gravity

This standard is applicable to the determination of the specific gravity of commercial vegetable oils.

1 Liquid specific gravity balance method

1.1 Instruments and utensils

1.1.1 Liquid specific gravity balance;

1.1.2 Beakers, pipettes, etc.

1.2 Reagents

1.2.1 Washing fluid;

1.2.2 Ethanol, ether;

1.2.3 Distilled water without carbon dioxide;

1.2.4 Absorbent cotton, filter paper, etc.

1.3 Operation method

1.3.1 Weigh the water: According to the instructions for the use of the instrument, first calibrate the instrument, hang No.1 weight on the hook, and inject distilled water into the measuring cylinder until the platinum wire on the buoy is immersed 1 cm in the water. Adjust the water to 20 °C, turn the screw on the balance base to balance the balance, and do not move it again. Pour out the water in the measuring cylinder, use ethanol first and then ether to remove the water on the buoy, measuring cylinder and thermometer, and then wipe dry with absorbent cotton.

1.3.2 Weigh the sample: Inject the sample into the measuring cylinder until the platinum wire on the buoy is immersed 1 cm into the sample. When the sample temperature reaches 20 °C, add weights to the groove of the balance to restore the balance to balance.

How to use the weights: First move the No.1 weight on the hook to the groove "9", then add the No.2, No.3, and No.4 weights to the grooves to balance the balance.

1.4 Result calculation

2 Pycnometer method

2.1 Instruments and utensils

2.1.1 Pycnometer: 25 ml or 50 ml (the stopper with a thermometer);

2.1.2 Electric constant temperature water bath;

2.1.3 Pipette: 25 ml;

2.1.4 Beakers, reagent bottles, mortars, etc.

2.2 Reagents

2.2.1 Ethanol, ether;

2.2.2 Distilled water without carbon dioxide;

2.2.3 Filter paper, etc.

2.3 Operation method

2.3.1 Wash the bottle: Wash the pycnometer with washing liquid, water, ethanol, and water in sequence.

2.3.2 Determine the water weight: Use a pipette to pipette the distilled water and pour it into the pycnometer along the inner wall of the bottle mouth, insert the stopper with a thermometer (no bubbles shall exist in the bottle after the stopper is inserted), and place the pycnometer in a constant temperature water bath at 20 °C. When the water temperature in the bottle reaches (20 ± 0.2) °C, take out the pycnometer, use filter paper to absorb the water overflowing from the drain pipe, cap the bottle, and wipe the outside of the bottle dry; weigh it after about 30 minutes.

2.3.3 Determine the weight of the bottle: Pour out the water in the bottle, wash with ethanol and ether to remove the water in the bottle, blow off the remaining ether in the bottle with dry air, and dry the inside and outside of the bottle; then, add the stopper and cap and weigh them (The weight of the bottle shall be reset by subtracting the air in the bottle. The weight of 1 cm³ of dry air under standard conditions is 0.001293 g $\approx$ 0.0013 g).

2.3.4 Determine the weight of the sample: Pipette the clarified sample below 20 °C, and pour it into the bottle according to the water weight measurement method; plug the bottle, wipe the outside with filter paper dipped in ether, place it in a constant temperature water bath at 20 °C, and take it out after 30 minutes. Wipe the outside of the bottle to remove the sample that overflows from the drain pipe, cap the bottle, and weigh it.

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