

ICS 71.100.60
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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 14454.5-2008

**Fragrance/Flavor substances -- Determination of optical
rotation**

(English Translation)

Issued on: July 15, 2008

Implemented on: November 1, 2008

**Issued by: General Administration of Quality Supervision, Inspection and
Quarantine**

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1 Scope

This Part of GB/T 14454 specifies the method for determining the optical rotation of fragrance/ flavor substances.

This Part applies to the determination of the optical rotation of fragrance/ flavor substances. When the measured fragrance/ flavor substances are solid, semi- solid, or very viscous and dark in color at room temperature, use a solution of fragrance/ flavor substances to measure.

2 Normative references

The terms in the following documents become the terms of this Part by reference to this Part of GB/T 14454. For dated references, all subsequent amendments (not including errata content) or revisions do not apply to this Part.

However, parties to agreements that are based on this Part are encouraged to study whether the latest versions of these documents can be used. For undated references, the latest edition applies to this Part.

GB/T 14454.1, Fragrance/Flavor substances - Preparation of test samples (GB/T 14454.1-2008, ISO 356:1996, MOD)

3 Terms and definitions

The following terms and definitions are applicable to this Part of GB/T 14454.

3.1 Optical rotation

Under the specified temperature conditions, when the polarized light whose wavelength is $589.3\text{ nm} \pm 0.3\text{ nm}$ (equivalent to the D line of the sodium spectrum) passes through the fragrance whose thickness is 100 mm, the angle of rotation of the polarized light vibration plane, which is expressed in milliradians or degrees of angle.

Note: If it is measured at different thicknesses, the optical rotation shall be converted to a value of a thickness of 100 mm.

3.2 Optical rotation in solution, so-called

Specific rotation

5.4 Thermometer, the measuring range is $10\text{ }^{\circ}\text{C} \sim 30\text{ }^{\circ}\text{C}$; the division scale is

0.2 or 0.1 $^{\circ}\text{C}$.

5.5 Constant temperature controller, it is used to control the temperature of the sample at $20\text{ }^{\circ}\text{C} \pm 0.2\text{ }^{\circ}\text{C}$ or other specified temperature.

6.1 Sample preparation

If it is necessary, dry the sample, in accordance with the provisions of GB/T 14454.1.

When determining the specific rotation (see 3.2), the solution of the fragrance product shall be prepared according to the concentration and solvent (4.2) that are specified in the standards that are related to fragrance products.

6.2 Determination

Turn on the light source (5.2) and wait for it to reach full brightness.

If necessary, the temperature of the sample (6.1) can be adjusted to $20\text{ }^{\circ}\text{C} \pm$

$1\text{ }^{\circ}\text{C}$ or other specified temperature¹; then, inject the sample into the appropriate polariscope tube (5.3) at the same temperature. Under constant temperature control, start the water circulation; keep the polariscope tube at a specified temperature ($\pm 0.2\text{ }^{\circ}\text{C}$) during the test.

Fill the polariscope tube full of the sample; ensure that there are no bubbles in the tube.

Put the polariscope tube into the polarimeter (5.1); read the right-handed (+) or left-handed (-) optical rotation of the fragrance according to the scale on the instrument.

6.3 Number of determinations

For the same sample, measure at least three times.

The difference of three measured values shall not be larger than 1.4 milliradians (0.08 °).
Take the average of the three readings as the measured result.

See Appendix A for the operating procedures of non-electronic polarimeters.

1 In general, the measurement shall be carried out at 20 °C. Exceptions are made in accordance with the provisions in the relevant fragrance product standards.

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