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

GB/T 14455.5-2008

**Fragrance/Flavor substances -- Determination of acid value or
acid content**

(English Translation)

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Foreword

GB/T 14455, Fragrance/Flavor substances, consists of the following parts:

- Part 1: Essential oils - Principles of nomenclature;
- Part 3: Fragrance/Flavor substances - Evaluation of solubility (miscibility) in ethanol
- Part 5: Fragrance/Flavor substances - Determination of acid value or acid content;
- Part 6: Fragrance/Flavor substances - Determination of ester value or ester content;
- Part 7: Fragrance/Flavor substances - Determination of ester value after acetylation and evaluation of free alcohols and total alcohols content.

This Part is Part 5 of GB/T 14455.

This Part modifies and adopts ISO 1242:1999, "Essential oils - Determination of acid value". Compared with ISO 1242:1999, the main technical differences are as follows:

- Add the determination method and calculation formula of the acid value

and acid content of isolate and synthetic fragrance;

-- Remove the relevant provisions of sampling method and precision of ISO 1242:1999.

This Part is the combination and revision of GB/T 14455.5-1993, "Essential oils - Determination of acid value" and GB/T 14457.4-1993 "Isolate and synthetic aroma chemicals - Determination of acid value or acid content". Compared with GB/T 14455.5-1993, GB/T 14457.4-1993, this Part mainly adds relevant contents of the test report.

This Part was proposed by China National Light Industry Council.

This Part shall be under the jurisdiction of National Technical Committee 257 on Fragrance and Flavor Cosmetic of Standardization Administration of China.

This Part was drafted by Shanghai Research Institute of Fragrance & Flavor Industry.

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Fragrance/Flavor substances -

Determination of acid value or acid content

1 Scope

This Part of GB/T 14455 stipulates the method for determining acid value or acid content of isolate and synthetic fragrances and acid value of essential oils.

This Part does not apply to essential oils that contain more lactones.

2 Normative references

The terms in the following documents become the terms of this Part by reference to this Part of GB/T 14455. 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)

GB/T 14454.14, Fragrance/Flavor substances - Preparation of standard solution, test solution and indicator solution

GB/T 14455.6, Fragrance/Flavor substances - Determination of ester value or ester content (GB/T 14455.6-2008, ISO 709:2001, MOD)

3 Terms and definitions

The following terms and definitions are applicable to this Part of GB/T 14455.

3.1 Acid value

The number of milligrams of potassium hydroxide that is required to neutralize the free acid that is contained in 1 g of fragrance.

4 Principle

Use sodium hydroxide standard solution or potassium hydroxide ethanol standard solution to neutralize the free acid.

8.1 Isolate and synthetic fragrance

Weigh an appropriate amount of sample (accurate to 0.000 2 g) in a saponification bottle or conical flask (6.1); add 20 mL of ethanol (5.1) and 3 drops of indicator (5.5); use sodium hydroxide standard solution (5.2 or 5.3) in the burette (6.3 or 6.4) to titrate, until pink appears and maintains for 10 seconds without fading; record the volume of used sodium hydroxide standard solution.

Note 1: If the ester value is to be determined, retain the saponification bottle and the solution inside.

Note 2: When measuring the acid value, if the amount of sodium hydroxide standard solution (5.2) exceeds 10 mL, reduce the sample and redo it, or use sodium hydroxide standard solution (5.3), instead, for titration.

Note 3: When measuring the acid value of aldehyde products, pink appears as the end point, because the active aldehyde groups are easily oxidized to acid during the titration.

Note 4: For darker samples, more ethanol (5.1) can be added for dilution.

Note 5: When measuring the acid value of formate esters, such as geranyl formate, benzyl formate, because such compounds are easily hydrolyzed in the presence of alkali, which makes the acid value too high; therefore, when measuring these samples, they shall be titrated in ice water bath.

Note 6: When determining the acid value of salicylates, use 50% ethanol to replace 95% ethanol, and use phenol red as an indicator.

8.2.1 Sample size

Weigh 2 g of the sample (accurate to 0.000 2 g).

Note: if the sample size is different from the above, it will be specified in the relevant fragrance product standard.

8.2.2 Determination

Put the sample (8.2.1) into the saponification bottle or conical flask (6.1); add 5 mL of ethanol (5.1) and 3 drops of indicator (5.5); use the potassium hydroxide ethanol standard solution (5.4) in the burette (6.4) to titrate the above liquid,

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