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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 5174-2018

Replacing GB/T 5174-2004

Surface active agents -- Detergents -- Determination of cationic-active matter content -- Direct two-phase titration procedure

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Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard replaces GB/T 5174-2004 "Determination of surfactant active content of surfactant detergent". versus

Compared with GB/T 5174-2004, the main technical changes are as follows.

--- Revised the quality of the recommended test sample (see 7.1, 7.1 of the.2004 edition);

--- Modified the volume of the test volume (see 7.2, 7.2 of the.2004 edition);

--- Revised the formula for calculating the active content (see Chapter 8, Chapter 8.1,.2004).

This standard uses the redrafting method to modify the use of ISO 2871-1.2010 "surfactant detergent cationic active content measurement

Part 1. Polymer Mass Cationic Actives and ISO 2871-2.2010 "Surfactant Detergent Cationic Actives"

Determination of amounts - Part 2. Low molecular weight (200 to 500) cationic actives. ISO 2871-1.2010 and ISO 2871-2.2010

The standard for the determination of the surfactant active content of surfactants is based on the same direct two-phase titration principle.

The same reagents, instruments, and calculation formulas are used. This standard combines the two as a basis for the revision of GB/T 5174-2004.

Compared with ISO 2871-1.2010 and ISO 2871-2.2010, this standard is adjusted as follows.

--- Added "5.4 pipette" and "5.5 beaker";

---Modified the position of "7.1 Possible interference in test" in ISO 2871-1.2010 and ISO 2871-2.2010,

Advance it to "Chapter 1 Scope";

--- 7.2 and 7.3 in this standard correspond to 7.2 in ISO 2871-1.2010 and ISO 2871-2.2010;

--- Chapter 9 "Test Report" added "f) test date and test personnel".

There are technical differences between this standard and ISO 2871-1.2010 and ISO 2871-2.2010. The terms involved in these differences have been adopted.

The vertical single line (|) at the margin of the outer margin is marked, and the corresponding technical difference and its cause are given in Appendix A.

Watch list.

This standard also made the following editorial changes.

--- Modified the standard name;

---4.1 Add a note on the use of "alternative solvent dichloromethane".

This standard was proposed by the China Light Industry Association.

This standard is under the jurisdiction of the National Standardization Committee for Surfactants and Detergents (SAC/TC272).

This standard was drafted. China Daily Chemical Research Institute Co., Ltd. [National Washing Products Quality Supervision and Inspection Center (Taiyuan)], Shenzhen

Bagemei Biotechnology Co., Ltd., Xi'an Kaimi Co., Ltd., Shanxi Provincial Institute of Standardization.

1 Scope

This standard specifies a direct two-phase titration method for the determination of surfactants and cationic actives in detergents.

This standard applies to the determination of cationic actives such as.

a) mono-, di-, tri-fatty alkyl tertiary amine quaternary ammonium salt, methyl sulfate quaternary ammonium salt;

b) a long chain amide ethyl group and an alkyl imidazoline salt or a 3-methyl imidazoline salt;

c) amine oxides and alkyl pyridinium salts.

This standard applies to solid actives or aqueous actives. If the content is expressed in mass fraction, the average phase of the cationic active

The molecular mass is known or pre-measured.

This standard does not apply to the determination of the presence of anionic or amphoteric surfactants.

Note 1. Relatively low molecular weight tosylate and xylene sulfonate present as a co-solvent, the concentration relative to the active is less than or equal to 15%

When the amount is), there is no interference. If the concentration is larger, the impact should be considered.

Note 2. Nonionic surfactants, soap, urea and ethylenediaminetetraacetate do not interfere.

Note 3. Typical inorganic components in detergent formulations, such as sodium chloride, sodium sulfate, sodium borate, sodium tripolyphosphate, sodium perborate, sodium silicate, etc., do not interfere, but perboric acid

Bleaching agents other than sodium are destroyed prior to analysis and the sample is completely soluble in water.

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article.

Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 6682 Analytical laboratory water specifications and test methods (GB/T 6682-2008, ISO 3696.1987, MOD)

GB/T 13173 surfactant detergent test method (GB/T 13173-2008, ISO 607.1980, ISO 2996.

1974, ISO 4313.1976, ISO 4325.1990, ISO 697.1981, MOD; ISO 4321.1997, IDT)

QB/T 2739 Washing products - Common test methods - Titration analysis (capacity analysis) Preparation of test solutions

3 Principle

In a two-phase (water-chloroform) system in which a cationic dye and an anionic dye mixed indicator are present, an anionic surfactant is used.

The quasi-solution titrates the cationic active in the sample. The cationic surfactant in the sample initially reacts with the anionic dye to form a salt and dissolves

The chloroform layer is blue. In titration, an anionic surfactant replaces an anionic dye and forms a salt with a cationic dye at the end point.

The chloroform layer is light gray-pink.

4 reagents

Unless otherwise stated, only approved analytical reagents were used in the analysis and water was tertiary water in accordance with GB/T 6682.

4.1 Trichloromethane.

Note. It is also possible to select dichloromethane according to the test sample. Before use, confirm that the sample of the test sample has no significant difference with the chloroform.