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

GB/T 9347-2025

Replacing GB/T 9347-1988

**Determination of vinyl acetate content in vinyl chloride-vinyl
acetate copolymers**

氯乙烯-乙酸乙烯酯共聚物中乙酸乙烯酯的测定方法

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents". Drafting.

This document supersedes GB/T 9347-1988 "Determination of Vinyl Acetate in Vinyl Chloride-Vinyl Acetate Copolymers" and is consistent with GB/T 9347- Compared to 1988, aside from structural adjustments and editorial changes, the main technical changes are as follows.

- a) The principles have been changed (see 4.1, 5.1, Chapter 2 of the 1988 edition);
- b) The reagents or materials have been changed (see 4.2, 5.2, Chapter 3 of the 1988 edition);
- c) The instruments and equipment were modified (see 4.3, 5.3, Chapter 4 of the 1988 edition);

- d) The experimental procedures were modified (see 4.4, 5.4, Chapters 5 and 7 of the 1988 edition);
- e) The processing of experimental data was changed (see Chapter 6, 6.1 and 6.2 of the 1988 edition);
- f) The permissible difference was changed (see Chapter 7, 6.3 of the 1988 edition);
- g) The test report was amended (see Chapter 8, Chapter 8 of the 1988 edition).

This document was proposed by the China Petroleum and Chemical Industry Federation.

This document is under the jurisdiction of the National Technical Committee on Plastics Standardization (SAC/TC15).

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This document was first published in 1988, and this is its first revision.

Introduction

GB/T 9347-1988, "Determination of vinyl acetate in vinyl chloride-vinyl acetate copolymers," is equivalent to ISO 1159 1978.

The principle of the method is as follows. the sample is dissolved in purified tetrahydrofuran, and the acetate is hydrolyzed with potassium hydroxide-ethanol solution; thymol blue is used as an indicator.

The excess potassium hydroxide was back-titrated with sulfuric acid; the hydrogen chloride released during hydrolysis was determined by argentometric titration. Because in parallel experiments, ethyl chloride...

The endpoint of the hydrolysis of vinyl acetate is extremely difficult to be consistent (it cannot be accurately controlled), so this method is difficult to achieve satisfactory accuracy and precision.

Furthermore, ISO 1159 1978 has been repealed. Therefore, it is necessary to revise GB/T 9347-1988.

GB/T 7139 "Determination of chlorine content in polyvinyl chloride homopolymers and copolymers" (the current valid version is GB/T 7139-2023) The principle is. burning the sample releases all the chlorine molecules from the sample, and then the chlorine content

in the sample is measured. This method has been tested over a long period of time.

This revision of GB/T 9347-1988 is based on GB/T 7139-2023, which measures the chlorine content in the sample and then calculates the ethyl acetate content.

The content of olefins provides standard users with a more accurate detection method.

Vinyl acetate in vinyl chloride-vinyl acetate copolymer Determination methods
Warning---Personnel using this document should have practical experience working in a formal laboratory. This document does not address all possible safety issues.

Users are responsible for taking appropriate safety and health measures and ensuring compliance with relevant national regulations.

1 Scope

This document describes a method for determining the vinyl acetate content in vinyl chloride-vinyl acetate copolymers.

This document applies to the determination of vinyl acetate content in vinyl chloride-vinyl acetate copolymers.

2 Normative references

GB/T 7139-2023

3 Terms and Definitions

This document does not contain any terms or definitions that need to be defined.

4.1 Principle

The sample was oxidized with sodium peroxide, and the generated chloride was determined by potentiometric titration. The content of vinyl chloride was calculated, and then the vinyl acetate content was deduced. The content of.

4.2 Reagents or Materials

See section 4.2 of GB/T 7139-2023.

4.3 Instruments and Equipment

See section 4.3 of GB/T 7139-2023. Suitable composite silver electrodes may also be used.

4.4 Test Procedure

According to section 4.4 of GB/T 7139-2023.

5.1 Principle

The sample is burned in oxygen, and the generated chlorides are determined by potentiometric titration. The content of vinyl chloride is calculated, and then the content of vinyl acetate is deduced. content.

5.2 Reagents or Materials

See section 5.2 of GB/T 7139-2023.

5.3 Instruments and Equipment

See section 5.3 of GB/T 7139-2023. Suitable composite silver electrodes may also be used.

5.4 Test Procedure

According to section 5.4 of GB/T 7139-2023.

6 Experimental Data Processing

The vinyl acetate content in the vinyl chloride-vinyl acetate copolymer is expressed as a mass fraction w , with the value expressed as a percentage (%), and is calculated according to formula (1). $w = 100 - \frac{cM(V_1 - V_2)}{1000m} \times 100$ (1) In the formula.

c --- The concentration of the silver nitrate standard titration solution, in moles per liter (mol/L);

M --- Molar mass of vinyl chloride, in grams per mole (g/mol) ($M = 62.498$);

V_1 --- The volume of silver nitrate standard titration solution consumed in determining the sample, in milliliters (mL);

V_2 --- The volume of silver nitrate standard titration solution consumed in the blank test, in milliliters (mL);

m --- the mass of the sample, in grams (g).

The calculation result should be rounded to one decimal place.

7 Allowable difference

The absolute value of the difference between two parallel determinations should not exceed 0.4% (Method A) or 0.8% (Method B). Take the results of the two parallel determinations...

The arithmetic mean is used to report the results.

8 Test Report