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

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Plastics - Epoxy resins - Determination of 1, 2-glycol content

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foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules for Standardization Documents" drafting.

This document is equivalent to ISO 21048.2014 "Determination of 1,2-Ethylene Glycol Content in Plastic Epoxy Resins".

The following minimal editorial changes have been made to this document.

---Added notes in 5.4, 5.5, 5.9, 5.10, 5.12.2;

--- Amend "V2-V1" in formula (1) of 5.12.3 to "V1-V2";

Please note that some contents of this document may refer to patents. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

During the production of epichlorohydrin epoxy resin, impurities containing 1,2-ethylene glycol can be formed. Due to the hydrophilicity of 1,2-ethylene glycol

However, the content of these impurities needs to be controlled because they can affect the final properties, such as electrical insulation. In addition, when using curing agents such as amines and anhydrides

These impurities will affect the speed of the curing reaction. Therefore, for resin manufacturing and customer use, the determination of 1,2-ethane in epoxy resin

The diol content is very important.

Determination of 1,2-Ethylene Glycol Content in Plastic Epoxy Resins

CAUTION. Personnel using this document should be familiar with routine laboratory practice. This document does not mention all safety issues during use, so that

The user must establish appropriate safety and health measures and ensure compliance with regulatory requirements.

1 Scope

This document describes a method for the determination of the 1,2-ethanediol content of epoxy resins.

This document applies to the determination of 1,2-ethylene glycol content in epoxy resin.

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text. Among them, dated references

For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to this document.

and test methods)

Note. GB/T 6682-2008 Analytical Laboratory Water Specifications and Test Methods (ISO 3696:1987, MOD)

ISO 5725-2 Accuracy (trueness and precision) of measurement methods and results - Part 2. Determining the repeatability of standard measurement methods
measurement method]

Note. GB/T 6379.2-2004 Accuracy of measurement methods and results (trueness and precision) Part 2. Determining the repeatability and repeatability of standard measurement methods

The basic method of presentability (ISO 5725-2:1994, IDT)

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1

1,2-ethylene glycol, 1,2-glycol

The content of 1,2-ethylene glycol $[-CH(OH)CH_2OH]$ groups in epoxy resins is expressed in

moles per kilogram (mol/kg).

Note 1. This part is equivalent to two -OH groups in chemical structure.

Note 2. Other possible naming methods are ortho-OH group, 1,2-dihydroxyl group, alpha-ethylene glycol group.

4 principles

1,2-Ethylene glycol is determined according to the following reaction.

1,2-Ethylene glycol is oxidized to aldehyde compound by excess periodic acid (reaction formula 1), then add potassium iodide and sulfuric acid to react (reaction formula

2), the generated iodine is titrated with sodium thiosulfate standard solution (reaction formula 3). The content of 1,2-ethylene glycol was determined by the standard titration solution of sodium thiosulfate

Consumption calculation.