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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 41633.2-2022

Insulating liquids - Determination of acidity - Part 2: Colourimetric titration

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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 of Standardization Documents"

drafted.

This document is part 2 of GB/T 41633 "Determination of Acid Value of Insulating Liquids". GB/T 41633 has published the following parts.

--- Part 2.Colorimetric titration;

--- Part 3.Test methods for non-mineral insulating oils.

This document is modified and adopted IEC 62021-2.2007 "Determination of acid value of insulating liquids - Part 2.Colorimetric titration".

Compared with IEC 62021-2.2007, this document has made the following structural adjustments.

--- In order to avoid the occurrence of suspension sections, 5.1 "distilled water", 8.1 "general rules" and 10.1 "general rules" were added respectively, and the subsequent clauses were extended accordingly;

--- Deleted the note in Chapter 10 "Precision" of IEC 62021-2.2007, and incorporated its content into Table 1 and Table 2.

The technical differences between this document and IEC 62021-2.2007 and their reasons are as follows.

--- Modified the description of the relevant scope of IEC 62021-2.2007 to improve operability (see Chapter 1);

---According to the fact that this document is not cited, the normative reference IEC 60567 in IEC 62021-2.2007 is deleted;

--- According to the actual needs of our country, the normative reference document GB/T

6682 has been added (see 5.1);

--- According to actual needs, the relevant requirements for the preservation of potassium hydroxide standard solution are added (see 5.2);

---According to the actual application in my country, in addition to isopropanol, other suitable reagents are added as the titration solvent (see 5.3);

--- For the convenience of operation and application, the "titration vessel", "stirrer" and "burette" in IEC 62021-2.2007 are adjusted to "conical flask"

"Betette", "Analytical Balance" and "Beaker", and make specific requirements for them (see Chapter 6);

---Replace IEC 60475 (see Chapter 7) with the normatively quoted equivalent GB/T 41146 to adapt to my country's technical regulations

parts to improve operability;

--- Replace ISO 5725 (see Chapter 10) with the normative reference equivalent GB/T 6379 (all parts), to adapt to our

the technical conditions of the country and improve the operability.

The following editorial changes have been made to this document.

--- Editorial changes were made to Chapter 10 "Precision" of IEC 62021-2.2007;

--- Delete the informative appendix A of IEC 62021-2.2007 "Determination of acid value of electrical insulating oil by photometric titration".

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

Health and Safety

This document is not intended to address all safety concerns associated with its use, and it is the responsibility of the user to establish appropriate health

and safety rules to ensure the applicability of this document.

The mineral oils involved in this document should be properly protected for personal protection. Direct contact with the eyes may cause mild pain.

Eyes, flush eyes with plenty of clean running water and seek medical attention in time.

Some of the tests covered in this document may lead to hazardous situations. Please refer to the relevant guidance document.

This document covers mineral oils, chemicals, and used sample containers. With regard to disposal attention to the impact on the environment, various measures should be taken.

Precautions to prevent mineral oil from polluting the environment.

The acid value determination standard of insulating liquid is widely used in the research and development, production, quality inspection, sales, acceptance and technical exchange of insulating liquid products.

Setting this series of standards can guide the industry to more effectively carry out the detection and evaluation of the acid value of insulating liquids, and can improve the quality of insulating liquid products.

and application reliability.

The standard for the determination of acid value of insulating liquids is compiled in different parts. In order to maintain the basic consistency with the corresponding IEC standard,

When preparing this series of standards, it is necessary to list different parts separately.

GB/T 41633 describes the method standard for the determination of the acid value of insulating liquids, and is intended to consist of three parts.

--- Part 1.Automatic potentiometric titration. The purpose is to determine the method and procedure for determining the acid value of insulating liquids by automatic potentiometric titration.

--- Part 2.Colorimetric titration. The purpose is to determine the method and procedure for determining the acid value of insulating liquids by colorimetric titration.

--- Part 3.Test methods for non-mineral insulating oils. The purpose is to identify unused and used electrical non-mineral insulating oils

Two test methods for acid value. potentiometric titration and colorimetric titration.

Determination of acid value of insulating liquids

Part 2.Colorimetric Titration

1 Scope

This document describes the method and procedure for determining the acid value of insulating liquids by colorimetric titration.

This document applies to both unused and used electrical insulating liquids.

Note. In unused and used insulating liquids, acidic components include organic acids, phenolic compounds, oxidation products, resins, metal organic salts and additives

Additives.

2 Normative references

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

documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to

this document.

GB/T 6379 (all parts) Accuracy (correctness and precision) of measurement methods and results [ISO 5725 (all parts)]

Note. GB/T 6379.1-2004 Accuracy (correctness and precision) of measurement methods and results - Part 1.General provisions and definitions (ISO 5725-1.

1994, IDT)

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

Basic methods of presentability (ISO 5725-2.1994, IDT)

GB/T 6379.3-2012 Accuracy (correctness and precision) of measurement methods and results - Part 3.Intermediateness of precision of standard measurement methods

Quantity (ISO 5725-3.1994, IDT)

GB/T 6379.4-2006 Accuracy (Correctness and Precision) of Measurement Methods and Results - Part 4.Basis for Determining the Accuracy of Standard Measurement Methods

This method (ISO 5725-4.1994, IDT)

GB/T 6379.5-2006 Accuracy (correctness and precision) of measurement methods and results - Part 5.Determining the accuracy of standard measurement methods

Alternative method (ISO 5725-5.1998, IDT)

GB/T 6379.6-2009 Accuracy of Measurement Methods and Results (Correctness and Precision) Part 6.Practical Application of Accuracy Values

(ISO 5725-6.1994, IDT)

GB/T 6682 Analysis Laboratory Water Specifications and Test Methods (GB/T 6682-2008, ISO 3696.1987, MOD)

GB/T 41146 Sampling method for insulating liquids (GB/T 41146-2021, IEC 60475.2011, IDT)