

ICS 75.140  
CCS E 38



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

**GB/T 25961-2010**

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**Standard test method for corrosive sulfur in electrical  
insulating oils**

电气绝缘油中腐蚀性硫的试验法

**(English Translation)**

**Issued on: January 10, 2011**

**Implemented on: May 1, 2011**

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**Issued by: Standardization Administration of China**

## Table of Contents

|                           |
|---------------------------|
| Foreword                  |
| Introduction              |
| 1 Scope                   |
| 2 Normative references    |
| 3 Method Summary          |
| 4 Apparatus and materials |
| 5 Reagents                |

### Foreword

This revised standard adopts the American Society for Testing and Materials standard ASTM D1275-06 "electrical insulating oil corrosive sulfur test method." this standard redrafted according ASTM D1275-06.

The standard Chapter 4 ASTM D1275-06 removed, and Chapter 8, Chapter 13, according to delete other chapters numbered sequentially adjusted.

In order for China's national conditions, the use of this standard when ASTM D1275-06 made some changes. This standard ASTM D1275-06 the main technical differences are as follows.

- This standard adds "This standard applies" in Chapter 1, the ASTM D1275-06 the present standard 1.2 introduction;
- This standard ASTM D1275-06 removed in 1.3, because the unit used in this standard are SI units, standard not repeated;
- The ASTM D1275-06 the contents of which 1.4 This standard warning to comply with the national standard preparation of regulations;
- Increase --- Chapter 2 reference standard GB/T 6682, as distilled water used in the cleaning process in the test bottle;
- In order to meet the requirements of national standard preparation of the ASTM D1275-06 in Chapter 4, the meaning and content as the use of this standard Introduction, reg number amended accordingly;
- The standard delete ASTM D1275-06 of 3.1 and Chapter 8 in relation to the method A, because ASTM D1275-06 A method for the technical contents have been transformed into China's petrochemical industry standards;

--- Reagent chapter added petroleum ether, ethanol and distilled water for cleaning copper;

--- The standard delete ASTM D1275-06 in Chapter 13 keywords.

This standard by the National Standardization Technical Committee on products and lubricant oil (SAC/TC280) proposed.

This standard by the National Standardization Technical Committee of petroleum products lubricants oil and lubricants and fuels Technical Committee (SAC/TC280/SC1) centralized.

This standard is mainly drafted by. China National Petroleum Corporation Karamay lubricants Institute.

Participated in the drafting of this standard. East China Electric Power Test & Research Institute Co., Ltd., China Petroleum & Chemical Corporation lubricants R & D (Shanghai) Center, Anhui Electric Power Research Institute.

## Introduction

In many cases used in the insulating oil, it is easy to produce with a continuous metal contact corrosion. The presence of corrosive sulfur compounds can cause metal Material deterioration extent of this depends on the number and type of corrosive substances and the time and temperature and other factors. These non-detection Ideal impurities, if not quantitative detection is also an effective means of identifying hazardous substances.

New and with petroleum-based electrical insulating oil may contain certain substances will corrode under certain conditions. This standard Under specified conditions, the copper in contact with the oil, in order to detect whether the free (elemental) sulfur and sulfide corrosion or the formation of a trend exists.

Electrical insulating oil of corrosive sulfur test method Warning. This standard relates to certain hazardous materials, operations and equipment, but not for all of the safety issues are related to this recommendation.

Therefore, the user before using the standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations related.

## 1 Scope

This standard specifies the electrical insulating oil, petroleum-based corrosive sulfur compounds (inorganic and organic sulfur compounds) detection method.

This standard applies to new and used in the petroleum-based electrical insulating oil.

## 2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB/T 2480 silicon carbide abrasive materials GB/T 5096 petroleum products copper corrosion test GB/T 6682 analytical laboratory use specifications and test methods (GB/T 6682-2008, ISO 3696. 1987, MOD)

## 3 Method Summary

The Deal with copper containing 220mL insulating oil into the sealed bottle thick-walled high temperature test at 150 °C holding 48h, test After the observation of the color change of copper, to determine the sulfur corrosion, caused by sulfide.

## 4 Apparatus and materials

### 4.1

Oven. temperature controlled at 150 °C ± 2 °C. Preferably using a circulating thermostatic oven blast.

### 4.2

Test bottle. 250mL bottle neck thick-walled high-temperature test with internal threads. By a chemically resistant glass, test bottle neck is threaded with with Viton "O" rings of PTFE (polytetrafluoroethylene) screw plug sealed to prevent air from entering. Figure 1.

### 4.3

Tweezers. stainless steel, flat head.

### 4.4

copper. purity of 99.9% and a thickness of 0.127mm ~ 0.254mm, non-polluting.

### 4.5

Abrasives. particle size of 63μm No. 240 sandpaper or emery cloth silicon carbide, silicon carbide powder 63μm, in line with GB/T 2480 of Claim.

## 5 Reagents

### 5.1

acetone. AR.

**5.2**

petroleum ether. AR.

**5.3**

ethanol. AR.

**5.4**

Distilled water. in line with GB/T 6682 in the three water requirements.

**5.5**

Nitrogen. purity of not less than 99.9%.