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

GB/T 7602.4-2017

**Quantitative determination of T501 oxidation inhibitor content in
transformer oil or turbine oil -- Part 4: GC/MS method**

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4.3 Dimethyl Phthalate (DMP). Analytical purity.

4.4 Blank oil T501-free mineral insulating oil or turbine oil.

4.5 syringe filter membrane .0.45 μ m, PTFE material.

4.6 syringe .2.5 mL.

4.7 centrifuge tube .50mL.

4.8 Helium - Purity not less than 99.99%.

5 instruments

5.1 gas chromatograph

0.25 μ m.

Foreword

GB/T 7602 "transformer oil, turbine oil T501 antioxidant content assay" is divided into four parts.

--- Part 1. Spectrophotometry;

--- Part 2. Liquid chromatography;

--- Part 3. Infrared spectroscopy;

--- Part 4. GC/MS.

This section GB/T 7602 Part 4.

This section drafted in accordance with GB/T 1.1-2009 given rules.

This section uses the redrafted law reference IEC 60666.2010 "Qualitative and quantitative detection of specific additives in mineral insulating oil" in

3.4 The degree of conformity with IEC 60666.2010 is not equivalent.

This part is proposed by China Electricity Council.

This part of the National Electrochemical Standardization Technical Committee (SAC/TC322) centralized.

This section drafted unit. Guangdong Power Grid Co., Ltd. Electric Power Research Institute, China Petroleum Lanzhou Lubricant Research and Development Center, West An Thermal Research Institute Co., Ltd., Guangzhou Power Supply Bureau Electric Power Research Institute Ltd., Guangdong Power Grid Co., Ltd. Zhuhai Power Supply Bureau.

1 Scope

GB/T 7602 provisions of this part of the transformer oil, turbine oil added T501 (2,6-di-tert-butyl p-cresol) antioxidant containing

Quantitative gas chromatography - mass spectrometry method.

This section applies to unused and in operation transformer oil, turbine oil T501 antioxidant content determination.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version applies to this article

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

Electric power oil (mineral insulating oil, turbine oil) sampling method

3 Method summary

This section uses the T501 antioxidants after the transformer oil and turbine oil mass spectrum 205,220 signal peaks appear, and

The peak intensity of this signal is proportional to the concentration of T501. By plotting the standard curve, the T501 in transformer oil and turbine oil

Content, the results with the concentration (%) said.

4 reagents and materials

Iso-octane. Analytical pure.

4.2 2,6-Di-tert-butyl-p-cresol (DBPC, T501). Analytical purity.

5.1 gas chromatograph

5.1.1 injection device. With the sample vaporization, diversion and collection of residual oil

function.

5.1.2 Capillary column .5% phenylpolysiloxane and 95% methylpolysiloxane stationary phase, length 30m, inner diameter 0.25mm, film thickness

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