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

GB/T 18403.3-2014

**Expression of performance of gas analyzers -- Part 3:
Paramagnetic oxygen analyzers**

气体分析器性能表示 第3部分：顺磁氧分析器

(English Translation)

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Foreword

GB/T 18403 "performance of gas analyzers" have or plan to release the following sections.

- Part 1. General;
- Part 2. Oxygen in gas (high-temperature electrochemical sensors);
- Part 3. paramagnetic oxygen analyzer;
- Part 6. Photometric analyzers.

This section GB/T 18403 Part 3.

This section drafted in accordance with the rules of GB/T 1.1-2009 and GB/T 20000.2-2009 given.

This section uses the translation method is equivalent to using IEC 61207-3:2002 "performance of gas analyzers - Part 3. paramagnetic oxygen analyzer Device. " Consistency correspondence between this part of international documents and normative references of our files are as follows.

- GB/T 19001-2008 quality management system requirements (ISO 9001:2008, IDT) for

ease of use, this section made the following editorial changes.

--- A supplement to IEC 61207-3 Corrigendum 1 and 2 of errata.

Please note that some of the content of this document may involve patents. Release mechanism of the present document does not assume responsibility for the identification of these patents.

This part is proposed by China Machinery Industry Federation.

This part of the measurement and control of Standardization Technical Committee (SAC/TC124) is administered by the National industrial processes.

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Introduction

Paramagnetic oxygen analyzer only partial pressure sensors, rather than the volume concentration of the reaction, is widely used in industry, laboratories and other areas. in Reference under pressure analyzer rated measuring range of 0% to 1% and 0% to 100%.

Only a few gas paramagnetic (for example. oxygen, nitric oxide and nitrogen dioxide). Oxygen has a strong paramagnetic susceptibility (see Appendix A), based on the characteristics of oxygen in most industrial applications, it can be designed to have a high specificity of the analyzer, such as measurement of high hydrocarbon background the oxygen content of the compound.

About paramagnetic oxygen measurement technology has many different descriptions, but commercially available analyzer mainly in the following three ways.

- Automatic zero balance (magnetic mechanical);
- Thermal-magnetic or magnetic wind;
- Pressure (or Quincke) method.

These methods require the sample gas cleaning and drying by heating and other improvements, so easily condensed at low temperatures of the sample gas can be analysis.

For these reasons, before the sample gas measurement response appropriately.

Performance of gas analyzers Part 3. paramagnetic oxygen analyzer

1 Scope

GB/T 18403 in this section applies to the three main methods, these three methods have been described in the introduction. This section relates to the basic assist Unit for indoor and outdoor installation analyzer.

Note: The key security system requirements need to add that this part of the technical performance of the analyzer does not contain this part.

The purpose of this section is.

- Specifies the terms and definitions paramagnetic gas analyzer features measurement of oxygen in the sample gas;
- Unified class analyzer features and verification methods;
- Specifies the test content and test methods for determination of functional characteristics should be carried out;
- Documents provide the basis for the ISO 9001 quality management standard applications.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 17214 (all parts) industrial process measurement and control equipment - Operating conditions GB/T 18403.1-2001 performance of gas analyzers - Part 1. General (IEC 61207-1:1994, IDT) GB/T 19768-2005 process analyzer sample processing system performance indicates (IEC 61115:1992, IDT) ISO 9001 quality management system requirements (Qualitymanagementsystems-Requirements)

3 Terms and Definitions

GB/T 18403.1-2001 and as defined in the following terms and definitions apply to this document.

Susceptibility magneticsusceptibility Measuring the amount of change of the magnetic field strength of the test substance and the vacuum magnetic field intensity, see equation (1).

H1-H

Where.

X --- susceptibility, dimensionless;

The magnetic field strength H --- vacuum state in amperes per meter ($A \cdot m^{-1}$);

H_1 --- test substance in the magnetic field strength in amperes per meter ($A \cdot m^{-1}$).

3.1.1

Paramagnetic substance paramagnetism You can increase the magnetic field strength of the material ($X > 0$).

3.1.2

Anti (against) a magnetic substance diamagnetism You can attenuate the magnetic field strength of the material (by $H_1 \rightarrow H_1 - X$).