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

GB/T 14604-2009

Replacing GB/T 14604-1993

Gas for electronic industry -- Oxygen

电子工业用气体 氧

(English Translation)

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Table of Contents

Foreword
1 Scope
2 Normative references
3 Technical requirements

Foreword

This standard replaces GB/T 14604-1993 "Electronic industrial gases oxygen." this standard and GB/T 14604-1993 compared to the main changes are as follows.

- Modify the electronics industry with a range of suitable oxygen (GB/T 14604-1993 Chapter 1, Chapter 1 of this edition);
- Modify Normative references (GB/T 14604-1993 of Chapter 2, this version of Chapter 2);
- Modify the contents of the technical indicators (GB/T 14604-1993 Chapter 3, Chapter 3 of this edition);
- Modify the electronics industry with bottled oxygen sampling requirements (GB/T 14604-1993 4.1, this version 4.1.3);
- Modify the electronics industry with bottled oxygen sampling method (GB/T 14604-1993 Chapter 5, this edition 4.1.1,4.1.2,4.1.4);
- Modify hydrogen, argon, nitrogen, krypton, carbon monoxide, carbon dioxide, nitrous oxide, total hydrocarbons and water content analysis and standard samples of Regulation Set, when a variety of assays appears to require arbitration method (GB/T 14604-1993 of 4.3,4.4,4.5,4.6,4.7, 4.8, this version of 4.3,4.4,4.6,4.7,4.8);
- Increase nitric oxide content analysis (edition 4.5);
- Modify signs, packaging, storage and security (GB/T 14604-1993 of Chapter 6, Chapter 7, Chapter 5 of this edition);
- Omitted GB/T 14604-1993 Appendix A and Appendix B;
- Increase Normative Appendix A, and the determination of the electronics industry uses helium ionization gas chromatography with oxygen in hydrogen, argon, nitrogen and krypton component the method to write the appendix (see Appendix A);
- Increase Normative Appendix B, and the determination of the electronics industry uses helium ionization gas chromatography with oxygen in carbon monoxide, carbon dioxide

Nitrous oxide components and methods of writing the appendix (see Appendix B).

This standard Annex A, Annex B normative appendix.

This standard by the National Standardization Technical Committee of semiconductor equipment and materials proposed.

The standard equipment by the National Standardization Technical Committee and the semiconductor material gas partial Technical Committee.

This standard was drafted. China Institute of Metrology, Southwest Chemical Industry Research and Design Institute.

1 Scope

This standard specifies the technical requirements of the electronics industry with oxygen, test methods and packaging, labeling, storage and security.

This standard applies to cryogenic, electrolysis extraction of gaseous or liquid oxygen, and oxygen obtained through the purification process. They are mainly used for two Chemical vapor deposition of silicon oxide, used as an oxidizing source and production of high pure reagents for plasma etching and stripping, the optical fiber.

Molecular formula. O₂.

Molecular Weight. 31.9988 (according to 2005 international relative atomic mass calculation).

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 190 packaging and marking of dangerous goods GB/T 3723 Sampling of chemical products for industrial use General Safety GB/T 3863 industrial oxygen GB 5099 seamless steel gas cylinders (GB 5099-1994, neqISO 4705.1993) GB 7144 cylinders color logo GB/T 8984 of carbon monoxide, carbon dioxide and hydrocarbons by gas chromatography GB 14194 permanent gas cylinders GB/T 14600 electronic industrial gas nitrous oxide GB 16912 Deep frozen production of oxygen and gas safety related technical specifications JB/T 5905 multi-layer vacuum insulated cryogenic liquid containers JB/T 6897 cryogenic liquid tanker JB/T 6898 cryogenic liquid storage equipment safety rules Gas Cylinder Safety Supervision Pressure Vessel Safety Technology Supervision Pressure pipeline safety management and monitoring requirements

3 Technical requirements

Electronic industrial oxygen gas quality shall meet the requirements of Table 1.

Table 1 Technical Specifications

Item Index

Oxygen (O₂) purity/content (volume fraction)/10⁻² ≥ 99.9998 99.98 99.5 Hydrogen (H₂)
content (volume fraction)/10⁻⁶