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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 8982-2025

Replacing GB/T 8982-2009

Oxygen supplies for medicine and aircraft breathing

医用及航空呼吸用氧

Issued on: October 31, 2025 **Implemented on: May 1, 2026**

Issued by: State Administration for Market Regulation;
Standardization Administration of the PRC

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1 Scope

GB/T 8982-2025 is the Chinese national standard covering breathing oxygen - the assay and the carbon monoxide, carbon dioxide and moisture limits, and above all the water content for the aviation grade, because moisture freezes and blocks a regulator at altitude. Issued on 31 October 2025, it has been in force since 1 May 2026, replacing GB/T 8982-2009.

This document specifies the technical requirements for oxygen supplies for medical and aircraft breathing, as well as the requirements for batching, sampling, inspection rules, marking, labeling, accompanying documents, packaging, filling, transportation and storage. It describes the methods for determining the oxygen and impurity contents in oxygen supplies for medical and aircraft breathing and provides safety information for oxygen supplies for medical and aircraft breathing. This document applies to gaseous and liquid oxygen supplies for medical and aircraft breathing produced by cryogenic separation of air.

2 Normative References

The contents of the following documents constitute indispensable clauses of this document through the normative references in the text. In terms of references with a specified date, only versions with a specified date are applicable to this document. In terms of references without a specified date, the latest version (including all the modifications) is applicable to this document.

GB 190 Packing Symbol of Dangerous Goods

GB/T 3863 Industrial Oxygen

GB/T 5832.2 Gas Analysis - Determination of Moisture - Part

3 Terms and Definitions

This document does not have terms or definitions that need to be defined.

4 Technical Requirements

4.1 The technical requirements for oxygen supplies for medical and aircraft breathing shall comply with the provisions of Table 1.

4.2 No requirements are made regarding the moisture content or odor of liquid oxygen.

5 Batching, Sampling and Sampling Inspection

5.1 Batching The oxygen supplies products for medical and aircraft breathing continuously and stably produced on the same production line constitute a batch. The oxygen supplies for medical and aircraft breathing packaged in cylinder bundles constitute a batch based on the quantity of products from one cylinder bundle.

5.2 Sampling It shall comply with the provisions of GB/T 43306.

5.3 Sampling Inspection

5.3.1 For oxygen supplies for medical and aircraft breathing packaged in cylinders (including welded insulated cylinders), random sampling inspection shall be conducted in accordance with the sampling quantities specified in Table 2.

5.3.2 The oxygen supplies products for medical and aircraft breathing packaged in cylinder bundles shall be individually inspected as a whole for each bundle.

5.3.3 The oxygen supplies for medical and aircraft breathing packaged in mobile pressure vessels shall be individually inspected.

5.3.4 For oxygen supplies for medical and aircraft breathing transported via pipelines, sampling inspection shall be conducted every 4 hours, or the sampling frequency shall be agreed upon by the supply-side and the demand-side.

6 Test Methods

---during the test, the exhaust gas shall be discharged outdoors to prevent its accumulation indoors.

6.1.1 Paramagnetic oxygen analysis method

6.1.1.1 Principle Oxygen molecules will be magnetized in a magnetic field, generating an additional magnetic field that is in the same direction as the external magnetic field, exhibiting paramagnetism. A paramagnetic oxygen analyzer typically contains a pair of nitrogen-filled glass spheres (dumbbells), which are mounted between the two magnetic poles of the sensor's enclosed chamber. There is a reflecting mirror on the central axis of the dumbbells that reflects the light beam emitted by the light source onto the photoelectric sensor. Oxygen in the gas to be tested will be drawn into the magnetic field, which exerts an acting force on the spheres, causing them to rotate. This changes the angle of the reflecting mirror, resulting in a change in the light intensity received by the photoelectric sensor. To ensure that the photoelectric sensor receives a strong light signal, the control system drives the electromagnetic coil of the dumbbells with current, making them return to their original positions. The driving current is proportional to the oxygen content; the oxygen content can be determined by determining the magnitude of the driving current.

6.1.1.2 Test conditions The following requirements shall be met.

---Temperature of operating environment. 5 C ~ 40 C;

---Relative humidity of operating environment. 20% ~ 85%;

---No electromagnetic fields affecting the normal operation of the instrument, no interfering gases affecting the accuracy of the determination, and no strong vibrations;

---Power supply. AC voltage (220 22) V, frequency (50 0.5) Hz;

---Instrument earthing requirements. reliable earthing (earthing resistance 4).

6.1.1.3 Reagents or materials 6.1.1.3.1 Zero-point gas The oxygen content in the zero-point gas shall be less than 0.01% of the instrument's minimum measuring range, with the residual gas being high-purity nitrogen. 6.1.1.3.2 Gas standard samples (or standard substances) The oxygen content shall be 80% of the measuring range, with the residual gas being high- purity nitrogen, and its expanded uncertainty shall not exceed 1%.