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

GB 21976.7-2012

**Escape apparatus for building fire - Part 7: Filtering respiratory
protective devices for self-rescue from fire**

建筑火灾逃生避难器材 第7部分：过滤式消防自救呼吸器

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Foreword

Clauses 5.1 ~ 5.8, clause 7, clause

8.1.1 of this part are mandatory. The rest are recommended. GB 21976 "Escape apparatus for building fire" is divided into the following parts. - Part

1 Scope

GB 21976.7-2012 is the Chinese national standard on escape apparatus for building fire - part 7: filtering respiratory protective devices for self-rescue from fire, in the field of environment and health protection, safety. It carries no /T suffix, which in the Chinese system means compliance is mandatory: a product or a practice within its scope has to meet it to be lawfully made, sold or carried out in China. It was issued on 5 November 2012 by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China; Standardization Administration of China, and has been in force since 1 June 2013. Classification: ICS 13.220.10, CCS C85. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This part of GB 21976 specifies the type, model, technical requirements, test methods, inspection rules, marking, packaging, transportation, storage, other requirements of the filtering respiratory protective devices for self-rescue from fire. This part applies to the disposable filtering respiratory protective devices for self-rescue from fire worn by personnel when they are in a place where the oxygen concentration in the air is not less than 17% in the event of a fire.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document; for the undated documents, only the latest version (including all the amendments) are applicable to this standard.

GB 2626-2006 Respiratory protective equipment - non-powered air-purifying particle respirator

GB 2890-2009 Respiratory protection - Non-powered air-purifying respirators

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 Filtering respiratory protective devices for self-rescue from fire A respirator for removing harmful gases such as carbon monoxide and smoke by adsorption, absorption, catalysis and direct filtration of a filtering device, for a person to escape in the event of a fire.

3.2 Half mask A mask which closely matches the face, covers the mouth and nose, or covers the mouth, nose, jaw.

3.3 Penetrating concentration The concentration of the medium gas as measured after passing through the filter device.

3.4 Protective time Under the specified test conditions, the time from when the medium gas is introduced into the filter device to the time when the concentration of the penetrated medium gas reaches a defined value.

3.5 Inhalation temperature Under specified test conditions, the temperature of the inhalation airflow as measured at 40 mm from the filter device of the specimen.

4 Type, model

4.1 Type According to the standby state of the respirator, it is divided into storage type and portable type. The representation of storage type is omitted. The portable type is represented by D.

4.2 Model The preparation of the respirator's model shall meet the following requirements. Example.

5.1 Structure

5.1.1 The filtering respiratory protective devices for self-rescue from fire (hereinafter referred to as "respirator") shall consist of a protective hood, a filtering device, a half mask, or otherwise a protective hood and a filtering device.

5.1.2 The basic design dimensions of the respirator shall be for adults.

5.2 Wearing mass The wearing mass of the respirator shall not exceed 1000 g.

5.3 Materials

5.3.1 Surface quality of metal materials All metal parts of the respirator shall be subjected to corrosion-resistance treatment. The surface shall be free from such defects as cracks, wrinkles, burrs.

5.3.4 Strength of packaging materials The respirator shall be sealed and packaged. The packaging material shall have sufficient fastness.

5.4 Resistance to mechanical impact and environmental change The respirator shall have sufficient stability for the specified mechanical load, ambient temperature and humidity changes.

5.5 Protective performance

5.5.1 Protective performance for carbon monoxide During the rated protective time, in any single 5 min process, the time-weighted average of the carbon monoxide's penetrating concentration shall not exceed 200 mL/m³, the inhalation temperature shall not exceed 65

°C, the inhalation resistance shall not exceed 800 Pa, the exhalation resistance shall not exceed 300 Pa.

5.6 Protective hood

5.6.1 Air-leakage coefficient The air-leakage coefficient of the eye area of the protective hood shall not exceed 20%. The air-leakage coefficient of the breathing zone shall not exceed 5%. If there is no half mask in the respirator, the air-leakage coefficient of the protective hood shall not exceed 5%.

5.7 Mechanical structural integrity of the respirator at high concentrations of carbon monoxide Under high concentrations of carbon monoxide, the respirator shall maintain its mechanical structural integrity and not pose a hazard to the wearer.

5.8 Connection strength The connection between the filter device and the protective hood can withstand an axial tensile force of not less than 50 N.

5.9 Personnel wearing suitability Without the aid of tools, it shall be able to quickly open the seal of the filter device of the respirator. The wear shall be quick and easy. The strap shall be quick to tighten and disengage.

6 Test methods

6.1 Structural inspection Use visual inspection and subjective perception for determination.

6.2 Determination of wearing mass Use the electronic scale which has a range of 0 g ~ 3000 g and an accuracy of grade-III to measure the wearing mass of the respirator.

6.3 Material test

6.3.1 Surface quality of metal materials Use visual inspection to determine it.

6.3.4 Strength test of packaging materials

6.3.4.1 Anti-drop performance test Allow the packed respirators (storage-type respirators are not tested) to drop from a height of

1.5 m to a flat concrete floor for 6 times at different azimuth angles.

6.4 Test of resistance to mechanical collision and environmental change

6.4.1 Test of resistance to mechanical collision It is carried out according to the provisions of

6.2.2.3 of GB 2626- 2006. The test time of the storage-type respirator is 20 min. The test time of the portable respirator is 100 min.