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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB 2890-2022

Replacing GB 2890-2009

Respiratory protection - Non-powered air-purifying gas mask

呼吸防护 自吸过滤式防毒面具

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1 Scope

GB 2890-2022 is the Chinese national standard on respiratory protection - non-powered air-purifying respirators, 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 29 December 2022 by the State Administration for Market Regulation; Standardization Administration of China, and has been in force since 1 January 2024. Classification: ICS 13.340.30, CCS C73. 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 document specifies the classification and sign, technical requirements, marking, packaging and information provided by the manufacturer of non-powered air-purifying gas masks; describes the test methods. This document applies to gas masks based on the non-powered air-purifying principle. This document does not apply to non-powered

air-purifying gas masks, which are used in hypoxic environments, underwater operations, escape and firefighting hot zones.

2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, for dated reference documents, only the version corresponding to the date applies to this document; for undated reference documents, the latest version (including all amendments) applies to this document.

GB/T 2428-1998 Head-face dimensions of adults

GB 2626-2019 Respiratory protection - Non-powered air-purifying particle respirator

GB/T 5703-2010 Basic human body measurements for technological design

GB/T 10586-2006 Specifications for damp heat chambers

GB/T 10589-2008 Specifications for low temperature test chambers

GB/T 11158-2008 Specifications for high temperature test chambers

GB/T 12903-2008 Personal protective equipment terminology

GB/T 23465-2009 Respiratory protective equipment - Practical performance evaluation methods

GB 30864-2014 Respiratory protection - Powered air-purifying respirator

GB/T 32166.2-2015 Personal protective equipment - Eye and face protection - Occupational eye and face protectors - Part

3 Terms and definitions

The terms and definitions as defined in GB/T 12903-2008, as well as the following terms and definitions, apply to this document.

3.1 Non-powered air-purifying gas mask The air-purifying protection device, where the wearer relies on the spontaneous breathing to overcome the resistance of the components and protect against toxic and harmful gases or vapors, particulate matter (such as toxic smoke, toxic mist) that harms the respiratory system or eyes and face.

3.2 Full mask A mask that fits tightly on the face and can cover the eyes, face, nose, mouth, chin.

3.3 Half mask A mask that fits tightly on the face and can cover the mouth and nose, or cover the mouth, nose, chin.

3.4 Protective time Under specified conditions, the time FROM when the test medium begins to pass through the filter TO when the concentration of the test medium passing

through the filter reaches the limit value.

3.5 Gas filter Cartridge Canister A filter component, which is used in a non-powered air-purifying gas mask, that can filter out toxic gases and/or vapors in the inhaled air.

3.6 Combined filters A filter component, that can simultaneously filter out toxic gases and/or vapors and particulate matter in the inhaled air.

Note. The combined filter whose anti-particulate components can be replaced is a combined type; the combined filter whose anti-particulate components cannot be replaced is an integral type.

4 Classification and marking

4.1 Non-powered air-purifying gas mask Non-powered air-purifying gas masks can be divided into catheter-type gas masks and direct-type gas masks, according to the connection method between the mask and the gas filter.

4.2 Mask Masks are divided into full masks and half masks, according to their structure.

4.3.1 Filter type

4.3.1.1 Ordinary filters Ordinary filters include.

4.3.1.2 Multifunctional filter Filters which are used to protect two or more types in the ordinary gas filters (4.3.1.1).

4.3.1.3 Combined filter Filters with the function of preventing particulate matter are divided into two categories. KN and KP, according to the different properties of protecting particulate matter. The category KN is only suitable for filtering non-oily particles; the category KP is suitable for filtering oily and non-oily particles.

4.3.2 Filter level

4.3.2.1 Filter protective time Filters are divided into level 1, level 2, level 3 according to the different protective time and from low to high.

4.3.3 Marking The marking of the gas filter consists of the gas filter protection gas type, gas filter protective time level, particle protection performance level (when applicable). The particle protection performance level is marked on the anti-particulate matter component; the protective gas type and filter level are marked on the anti-toxic gas and/or vapor component, on the combined filter.

5.1 Mask

5.1.1 General requirements for masks The structure and design of the mask shall meet the following requirements, be inspected according to the method specified in 6.2, evaluated in

6.23.

5.1.2 Mask adaptability to high and low temperatures When tested according to the method specified in 6.3, the mask shall have no obvious deformation; the connecting part shall be able to be connected to the gas filter (breathing hose), according to the method provided by the manufacturer.

5.1.3 Mask flammability When tested according to the method specified in 6.4, each component exposed to the flame shall not burn after being removed from the flame; if burning, the afterburning time shall not exceed 5 s.

5.1.4 Mask exhalation valve

5.1.4.1 Mask exhalation valve protection device When tested according to the method specified in 6.5, the exhalation valve protection device shall not slip, break or deform, when it withstands an axial tension of 50 N for 10 seconds.

5.1.5 Inward leakage

5.1.6 Mask dead space Test according to the method specified in 6.8.The test result shall not be greater than 1%.

5.1.7 Mask field of view Test according to the method specified in 6.9.The test results shall meet the requirements of Table 1.

5.1.8 Mask breathing resistance Test according to the method specified in 6.10.The test results shall meet the requirements of Table 2.

5.1.9 Mask viewing window Only full-face masks are tested. The observation windows of full-face masks shall meet the following requirements.

5.1.11 Mask headband Test according to the method in 6.14.The test results shall comply with the following requirements.

5.1.12 Overall air tightness of full mask When tested according to the method in 6.15, the pressure change within each full mask within 60 seconds shall not be greater than 100 Pa.

5.1.13 Breathing hose When tested according to the method of 6.16, the length of the breathing hose shall be 50 cm ~ 100 cm; when tested according to the method of 6.17, the pressure value inside the breathing hose shall not change within 15 seconds.

5.2 Filters

5.2.1 General requirements for gas filters The structure and design of the gas filter shall meet the following requirements, be inspected according to the method in 6.2, evaluated in 6.23.

5.2.4 Density of gas filters The density of the gas filter shall meet the following