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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB 45185-2024

Optometry products - Safety technical specifications for finished spectacles

眼视光产品 成品眼镜安全技术规范

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1 Scope

China's mandatory safety specification for finished spectacles - the completed pair as it is sold to the wearer, and the companion to GB 45184, which covers the components it is made from. It defines the terms and definitions of finished spectacles as optometry products, specifies the safety technical requirements, and describes the corresponding test methods. A pair of spectacles is only as good as its assembly, and that is what this standard exists to cover: components that each comply can be built into a pair that does not. So the requirements are those that only exist once the parts are together - the optical requirements of the assembled pair, with the power and the axis of each lens, the prismatic effect and the centration that decide whether the wearer sees correctly or is given a headache and eventually stops wearing them; the mechanical properties of the finished frame, its dimensional stability and the security with which the lenses are held; and the safety properties of the whole, including the freedom from sharp edges and the impact behaviour of the assembled pair rather than of a lens in isolation. To those are added the chemical requirements that follow from a product worn against the skin, and the marking

and information that must reach the wearer. What makes this pair of standards worth having as a pair, rather than as one document, is that the two failure modes are separate and are found by different people: a bad component is a manufacturing problem detected in a factory, while a bad assembly is a dispensing problem detected by the person wearing it. Issued on 31 December 2024 and in force since 1 January 2026.

This document defines the terms and definitions of finished spectacles as optometry products, specifies the safety technical requirements, and describes the corresponding test methods. This document applies to finished spectacles as optometry products.

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/T 26397 Ophthalmic Optics - Terminology

GB/T 39552.2-2020 Sunglasses and Sunglare Filters - Part

3 Terms and Definitions

The terms and definitions defined in GB/T 26397, GB 45184 and ISO 13666, and the following are applicable to this document.

3.1 finished spectacle All types of spectacles ready for immediate use. NOTE. the types generally refer to common spectacles, partially or fully enclosed eye masks, reversible or removable attachment lenses, etc. Common finished spectacles include prescription assembled spectacles, near-vision spectacles, sunglasses, swimming goggles, mountain and snowfield goggles, specialized spectacles for motor vehicle drivers, polarized 3D spectacles, etc.

3.2 assembled spectacle Finished spectacles assembled from lenses with vertex power and frames. NOTE. assembled spectacles are categorized into prescription assembled spectacles and near- vision spectacles.

3.3 prescription assembled spectacle Assembled spectacles manufactured in accordance with a prescription processing form or specific requirements.

3.4 near-vision spectacle Mass-produced assembled spectacles primarily for near-vision use. NOTE. they are generally categorized into single-focal near-vision spectacles, multi-focal near- vision spectacles, and progressive-focal near-vision spectacles.

3.5 centration point In the absence of prescription prism degree and thinned prisms, or

when such prism effects are negated, the point located at the optical center, distance reference point or fitting point, and associated with the frame. NOTE. generally, the centration point of a single-focal (except fixed-point single-focal) lens is referred to as the optical center; the centration point of a multi-focal lens is referred to as the distance reference point; the centration point of a fixed-point single-focal lens or progressive-focal lens is referred to as the fitting point. [Source: ISO 13666.2019, 3.2.30, modified]

3.6 centration point distance; CD centration point horizontal distance The distance between the centration points of the two lenses in the horizontal direction. NOTE 1.interpupillary distance, which refers to the distance between the geometric centers of the pupils of two eyes, is usually abbreviated as PD. NOTE 2.interpupillary distance is commonly used in industry to indicate the nominal value of the horizontal distance between the centration points. [Source: ISO 13666.2019, 3.2.31, modified]

3.7 centration point horizontal distance of one-side The distance between the centration point of a one-side lens and the vertical axis of symmetry between the lens rings (enclosing-square method) in the horizontal direction. NOTE 1.mono-pupillary distance is commonly used in industry to indicate the nominal value of the one-side horizontal distance of the centration point. If the manufacturer marks the luminous transmittance values, for Category SW0 ~ Category SW3 lenses, the absolute deviation of the luminous transmittance shall not exceed 3%; for Category SW4 lenses, the relative deviation of the luminous transmittance shall not exceed 30%.

4.5.2 Relative deviation of luminous transmittance

4.5.2.1 In accordance with the method described in 5.5.2, carry out the test. The relative deviation of luminous transmittance between the left and right lenses of sunglasses with zero diopter shall not exceed 15%.

4.5.2.2 In accordance with the method described in 5.5.2, carry out the test. The relative deviation of luminous transmittance between the reference points of the left and right lenses of swimming goggles shall not exceed 15%.

4.5.3 Traffic signal recognition

4.5.3.1 In accordance with the method described in 5.5.3, carry out the test. The relative visual attenuation factor (Q) of sunglasses used for walking and driving shall meet the following requirements.

---Red, Q 0.80;

---Yellow, Q 0.60;

---Green, Q 0.60;

---Blue, Q 0.60.

4.5.3.2 In accordance with the method described in 5.5.3, carry out the test. The relative visual attenuation factor (Q) of finished spectacles (excluding sunglasses) used for walking and driving shall meet the following requirements.

---Red, Q 0.80;

---Yellow, Q 0.60;

---Green, Q 0.60;

---Blue, Q 0.40.

5 Test Method

5.1 Test Conditions The ambient temperature shall be 23 °C 5 °C.

5.2 Vertex Power

5.2.1 Finished spectacles Place the lower edge of the finished spectacles against the reference backup plate of the lensometer. Place one of the lenses with its posterior surface facing the support of the lensometer and keep it centered. In accordance with the type of finished spectacles, measure at the reference point on the lens. Repeat the above steps to measure the other lens of the finished spectacles. If the manufacturer explicitly states that the vertex power is corrected for the wearing position, then, take the corrected vertex power as a contrast for measurement. The manufacturer's stated corrected vertex power for the wearing position shall be indicated on the packaging and accompanying documents.

5.2.2 Sunglasses with zero diopter

5.2.2.1 General Measurements shall be conducted using the finite telescope method. Other equivalent measurement methods, for example, the lensometer method, may also be used. If the measurement results of the finite telescope method differ from those of the lensometer method, the finite telescope method shall prevail.

5.2.2.2 Finite telescope method 5.2.2.2.1 Test device See GB 45184 for the test device. 5.2.2.2.2 Test procedures 5.2.2.2.2.1 Adjustment of test device See GB 45184 for the adjustment of the test device. 5.2.2.2.2.2 Measurement position For samples with a designated wearing position, measurements shall be conducted at the designated wearing position. For samples without a designated wearing position, measurements shall be conducted using the following placement methods.

---Sunglasses with zero diopter and separated lenses. place the lens surface perpendicular to the optical axis of the system and measure at measurement point C as specified in Figure 1.