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Measurement of the refractive index of eyeglass lenses

眼镜镜片 折射率试验方法

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part

1. Structure and drafting rules for standardization documents" Drafting. Please note that some of the contents of this document may involve patents. The issuing organization of this document does not assume the responsibility for identifying patents. This document was proposed by China Light Industry Federation. This document is under the jurisdiction of the National Technical Committee on Optometry Standardization (SAC/TC596). This document was drafted by: Donghua University, Carl Zeiss Optics (Guangzhou) Co., Ltd., Ningbo Fario Optical Technology Development Co., Ltd., Shanghai Essilor Optics Co., Ltd., Yingchang Group Co., Ltd., Zhejiang Weixing Optics Co., Ltd., Jiangsu Shike New Materials Co., Ltd. Company, Jiangsu Ruier Optical Co., Ltd., Jiangsu Quanzhen Optical Technology Co., Ltd., Shenzhen Huiming Optical Co., Ltd., National Optical Glass Glass and enamel products quality inspection and testing center. The main drafters of this document are. Wang Likun, Ouyang Liu, He Yunhui, Li Chao, Zhang Shengtao, Song Zhen, Hou Dongcai, Wang Song, Wang Minghua, Chen Zhengxiu, Li Jun, Li Zhaojiao, Ye Jiayi, and Sun Jingjie. Test method for refractive index of eyeglass lenses

1 Scope

China's national standard for measuring the refractive index of eyeglass lenses. Refractive index is the number the whole optical trade quotes - a 1.67 lens against a 1.50 - and what the customer is buying with it is thinness: a higher index bends light more, so a lens of the same power can be made flatter and lighter, which for a strong prescription is the difference between wearable and not. The number is worth a large premium, and since nothing about a finished lens reveals it to the eye, it can be and is misdeclared. Measuring it on a finished spectacle lens is not straightforward, because the lens is curved and the classical

instruments want a flat surface. The standard describes four methods - the V-prism method, the Abbe refractometer method, the Michelson interferometer method and the dielectric immersion method - and applies to the measurement of the refractive index of eyeglass lenses.

This document describes the V-prism method, the Abbe refractometer method, the Michelson interferometer method and the dielectric immersion method for measuring the refractive index of eyeglass lenses. Emission rate. This document applies to the measurement of the refractive index of eyeglass lenses.

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in this document. For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to This document.

GB/T 17341 Optics and optical instruments - Lensmeters

GB/T 26397 Ophthalmic Optics Terminology

3 Terms and definitions

The terms and definitions defined in GB/T 26397 and the following apply to this document.

3.1 V-blockprism A prism that has been processed into a specified shape for measuring refractive index.

3.2 A transparent liquid with a refractive index close to that of the sample being measured, generally used to measure the refractive index using the V-prism method.

3.3 contacting liquid A transparent liquid with a refractive index greater than that of the sample being measured, generally used to measure the refractive index using an Abbe refractometer.

3.4 phase refractive indexphaserefractiveindex When light propagates in a medium, the ratio of the speed of light in a vacuum to the phase velocity of light in the medium.

3.5 group refractive indexgrouprefractiveindex When light propagates in a medium, the ratio of the speed of light in a vacuum to the group velocity of light in the medium.

4 V Prism Method

4.1 Test conditions Ambient temperature. $23^{\circ}\text{C}\pm 5^{\circ}\text{C}$; relative humidity. 30%~80%.