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

GB/T 46542-2025

Textiles - Test method of reflective performance

纺织品 反光性能试验方法

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part

1. Structure and Drafting Rules of Standardization Documents". Drafting. Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents. This document was proposed by the China National Textile and Apparel Council. This document is under the jurisdiction of the National Technical Committee on Standardization of Textiles (SAC/TC209). This document was drafted by: Nanjing Customs Industrial Products Testing Center, Anhui Hebang Textile Technology Co., Ltd., and China Textile Standard (Shenzhen) Testing Co., Ltd. Limited Liability Company, Zhejiang Yaqinuo Decorative Materials Co., Ltd., Zhejiang Huilong New Materials Co., Ltd., Taihua Dyeing & Finishing (Jiangsu) Co., Ltd., Jiajia Holding Group Co., Ltd., China Textile Standard (Fujian) Testing Co., Ltd., Zhejiang Water Resources and Hydropower College, Zhejiang Xinghua New Materials Group Co., Ltd. Company, China Jiliang University, Dongguan On-site Testing Technology Co., Ltd., Beijing Jingqu Technology Co., Ltd., China Textile Standard Testing & Certification Co., Ltd. The company, Hangzhou Ruikun Information Technology Co., Ltd., Beijing Junyi Technology Co., Ltd., and Night Vision New Materials Co., Ltd. The main drafters of this document are: Zhou Yuhang, Zhang Mo, Feng Yahui, Zhang Tianxiang, Li Xianwen, Xu Bin, Guan Mingqiang, Zhang Pengfei, Wang Kun, and Xie Minglan. Wang Lei, Chen Dongyang, Lou Danli, Liu Xin, Wang Shijie, Lang Yanyu, Ma Longbo, Ling Daxin, Yan Ying, Zhou Shaoqiang, Dong Shaowei, Jiang Liyi, Jia Weican, Wang Aimin. Test methods for reflective properties of textiles

1 Scope

GB/T 46542-2025 is the Chinese national standard covering measuring how well a fabric throws light back at its source - the coefficient of retroreflection at the entrance and observation angles that matter for a driver's headlights, the geometry of the measurement, and the conditioning before it. First edition, in force from 1 May 2026. Issued on 31 October 2025, it has been in force since 1 May 2026.

This document describes the test methods for the reflective properties of textiles. This document applies to all types of textiles.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included. For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies. This document.

GB/T 3978 Standard Illuminating Bodies and Geometric Conditions

GB/T 8170 Rules for rounding off numerical values and the representation and determination of limiting values

GB 20653 Protective Clothing - Occupational High-Visibility Warning Clothing

GB/T 40965 Measurement Method of Retroreflection

3 Terms and Definitions

The terms and definitions defined in GB 20653 and GB/T 40965, as well as the following terms and definitions, apply to this document.

3.1 reflective material A material with a thin, continuous retroreflective element attached to its surface.

Note. Retroreflective element refers to the smallest optical unit of a reflective surface that produces retroreflection through refraction, reflection, or both.

3.2 The material yields a reflective material with a retroreflection coefficient difference greater than 15% when rotated at angles of 0° and 90°. [Source: GB 20653-2020, 3.8]

3.3 observation angle The angle between the direction of observation and the direction of illumination from the light source.

Note. α is shown in Figure 1. [Source: GB/T 40965-2021, 3.2.14, with modifications]

3.4 angle of incidence The angle between the direction of the light source and the direction perpendicular to the fabric surface.

Note. The optical testing principle of β and retroreflection coefficient is shown in Figure 1. [Source: GB/T 40965-2021, 3.2.17, with modifications]