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

GB/T 43846.2-2024

**Microscopes - Designation of microscope objectives - Part 2:
Chromatic correction**

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(English Translation)

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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:

This document is Part 2 of GB/T 43846 "Nomenclature of microscope objectives": GB/T 43846 has been published for the following part:

- Part 1: Image field flatness/flat field;
- Part 2: Chromatic aberration correction;
- Part 3: Spectral transmittance:

This document is modified to adopt ISO 19012-2:2013 "Microscopes - Nomenclature of microscope objectives - Part 2: Correction for chromatic aberration":

The technical differences between this document and ISO 19012-2:2013 and their reasons are as follows:

- The introduction to the chapter "Terms and Definitions" replaces the obsolete ISO 10934-1 with ISO 10934;
- Deleted "---This mark does not apply to objective lenses sold before:2011;" in 4:2:1 to comply with Chinese standards Habit:

The following editorial changes were made to this document:

- Added Appendix A table number and introductory words, and changed the header format;
- Removed references:

Introduction

With the rapid development of various scientific and technological fields at home and abroad, microscopes are widely used in scientific research, teaching, medical care and industrial manufacturing:

In the optical system, the microscope objective is an important part of various types of optical microscopes: It is the first light to form an image of an object:

It is an important component to ensure the clear imaging of the microscope: Therefore, when designing and naming the microscope objective, it is necessary to consider the microscope the relevant parameters and functions of the lens and objective lens enable the optical microscope to function normally in various applications, thus ensuring the optical microscope product design, quality and application, promote coordination among enterprises and improve production efficiency:

In view of the above reasons, it is very important to standardize and normalize the naming of microscope objectives according to the relevant parameters and functions of different types of objectives:

Very necessary:

GB/T 43846 "Nomenclature of microscope objectives" contains the relevant terms, signs, logos and requirements of objectives, and is based on Objective lenses are named according to their parameters and functions: GB/T 43846 is divided into three parts:

--- Part 1: Image field flatness/flat field: The purpose is to specify the use of the "flat field" mark on the microscope objective and define the flat field:

The diameter of the clear image area on the object's surface:

--- Part 2: Chromatic aberration correction: The purpose is to specify the categories of chromatic aberration correction and the minimum requirements for chromatic aberration correction:

--- Part 3: Spectral transmittance: The purpose is to specify the way in which optical designers and microscope users describe the spectral transmittance of objectives:

Nomenclature of microscope objectives Part 2: Chromatic Aberration Correction

1 Scope

This document specifies the categories of chromatic aberration correction and the minimum requirements for chromatic aberration correction:

This document applies to visual observations using objective and tube lens combinations specified by the manufacturer:

The requirements for chromatic aberration correction in this document only concern axial chromatic aberration:

2 Normative references

The contents of the following documents constitute the 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:

Note: GB/T 27668-2023 Microscopes - Optical microscopy - Terminology (ISO 10934:2020, MOD):

3 Terms and definitions

For the purposes of this document, the terms and definitions defined in ISO 10934 and the following apply:

Reference wavelength the wavelength is 546:07nm (e line):

blue wavelength the wavelength is 479:99nm (F' line):

red wavelength

The wavelength is 643:85nm (C' line):

focus

The optimal focusing point for each wavelength of light:

focus difference

The axial separation of the foci at different wavelengths:

4 Requirements

4.1

Basic criteria for depth of field Formula (1) is the basic criterion for depth of field: