
Microscopes — Cover glasses —

Part 1:

**Dimensional tolerances, thickness and
optical properties**

Microscopes — Lamelles couvre-objet —

Partie 1: Tolérances dimensionnelles, épaisseur et propriétés optiques



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Foreword

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 8255-1 was prepared by Technical Committee ISO/TC 172, *Optics and photonics*, Subcommittee SC 5, *Microscopes and endoscopes*.

This second edition cancels and replaces the first edition (ISO 8255-1:1986), which has been technically revised.

ISO 8255 consists of the following parts, under the general title *Microscopes — Cover glasses*:

- *Part 1: Dimensional tolerances, thickness and optical properties*
- *Part 2: Quality of materials, standards of finish and mode of packaging*

Introduction

This part of ISO 8255 defines dimensions and specifies optical quality requirements in order to guarantee the quality of observation.

The data given in this part of ISO 8255 are applicable to most products in use and have been adapted to take into account the relevant national standards in vigour.

This part of ISO 8255 contains requirements for dimensional tolerances, thickness and optical properties, whereas quality requirements and test methods related to the material are dealt with in ISO 8255-2.

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Microscopes — Cover glasses —

Part 1:

Dimensional tolerances, thickness and optical properties

1 Scope

This part of ISO 8255 specifies requirements for dimensional tolerances, thickness and optical properties for microscope cover glasses used for transmitted light microscopy in the visible spectral range (400 nm to 760 nm).

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 8036, *Optics and photonics — Microscopes — Immersion liquids for light microscopy*

3 Requirements

3.1 General

All media that are located between the specimen and the microscope objective are in their optical effect part of the objective. Such media are usually cover glasses and immersion media. Immersion media are defined in ISO 8036; their refractive index shall be taken into account for the selection of the cover glass.

Microscope objectives, unless equipped with correction collars, are designed for a specific immersion medium (e.g. air, oil or water) and cover glass thickness. The design thickness is $t = 0,17$ mm, unless otherwise marked on the objective.

When using microscope objectives with high numerical aperture, deviations from the nominal cover glass thickness leads to severe optical aberrations, mainly spherical aberration.

The refractive index of the cover glass material needs to be specified for a broad spectral range to maintain good chromatic correction. This is achieved by specification of the refractive index, n_e , for a reference wavelength ($\lambda_e = 546,07$ nm) near the maximum of the eye's spectral sensitivity and the corresponding Abbe number, ν_e .