
International Standard



8037/1

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**Optics and optical instruments — Microscopes — Slides —
Part 1: Dimensions, optical properties and marking**

Optique et instruments d'optique — Microscopes — Lames porte-objet — Partie 1: Dimensions, propriétés optiques et marquage

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Descriptors : optical equipment, microscopes, microscope slides, dimensions, optical properties, marking.

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 8037/1 was prepared by Technical Committee ISO/TC 172, *Optics and optical instruments*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

Optics and optical instruments — Microscopes — Slides — Part 1: Dimensions, optical properties and marking

0 Introduction

This part of ISO 8037 lays down dimensions and specifies optical quality requirements in order, on the one hand, to solve the problem of storing slide preparations and, on the other hand, to guarantee the quality of observation. The data given in this part of ISO 8037 are applicable to most products in use and have been adapted to take into account the relevant national standards in force.

This part of ISO 8037 contains requirements for dimensions, thickness and optical properties, whereas quality requirements and test methods related to the material will be dealt with in a future part of ISO 8037.

Microscope slides form part of the illuminating system of which it is to illuminate the specimens, sometimes at very large condenser apertures and often so as to form the additional image of a diaphragm — the so-called "field diaphragm" — in the specimen. When a specimen is being prepared, it is often completely left to the discretion of the user to decide which method of microscopy (bright field, dark field, phase contrast, interference contrast) will be required for observation. Microscope slides and condensers (parts of the illuminating optical system) should, therefore, be suitable for a specimen to be illuminated and observed whatever the method chosen. In this context, it is important to keep to a certain refractive index and a certain thickness of the microscope slide, which together influence the quality of the image of the field diaphragm and the working distance between condenser and microscope slide.

1 Scope and field of application

This part of ISO 8037 specifies requirements for dimensions, thickness, optical properties and tolerances for microscope slides used for transmitted light microscopy in the visible spectral range¹⁾.

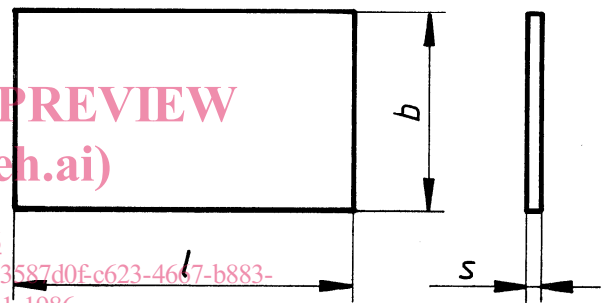
NOTE — This part of ISO 8037 does not cover requirements for suitability for fluorescence microscopy.

2 Reference

ISO 7944, *Optics and optical instruments — Reference wavelengths*.

3 Requirements

3.1 Dimensions (see the figure)



Figure

3.1.1 Length

The length, l , for microscope slides shall be as given in the table.

3.1.2 Width

The width, b , for microscope slides shall be as given in the table.

Table

Dimensions in millimetres

Length l	Width b	Comments
45_{-1}^0	26_{-1}^0	Dimensions for standard slides
76_{-1}^0		
76_{-1}^0	39_{-1}^0	Dimensions for large slides
76_{-1}^0	52_{-1}^0	

1) The visible spectral range is defined as being the range from 400 to 760 nm.

3.1.3 Thickness

The thickness, s , for microscope slides shall be

$$s = 1,1^{+0,1}_{-0,2} \text{ mm}$$

NOTE — Thicker and thinner slides are available. Highest optical quality, particularly with large aperture condensers, may not be obtained with these thicknesses.

3.2 Optical properties

The optical properties of microscope slides shall be as follows:

Principal refractive index: $n_e = 1,53 \pm 0,02$

NOTE — The principal refractive index, n_e , is the refractive index of light at the green mercury e-line ($\lambda_e = 546,07 \text{ nm}$; see ISO 7944). This wavelength is close to the maximum sensitivity of the eye and has been used as the principal wavelength of optical computation for some time.

4 Marking

The packaging of microscope slides conforming to this part of ISO 8037 shall be marked with the following information:

- a) the dimensions or designation, as given in the table;
- b) the average number of slides per package;
- c) the manufacturer's or supplier's name or mark, and country of origin;
- d) a statement that the slides comply with the requirements laid down in this part of ISO 8037.

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