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Microscopes — Designation of microscope objectives —

Part 4: Polarization characteristics

Microscopes — Désignation des objectifs de microscope —

Partie 4: Caractéristiques de polarisation

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Foreword

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Introduction

The polarization characteristics of microscope objectives are important parameters that allow users to choose the appropriate product for a given application. This document shows the requirement(s) for the marking of polarizing objective lenses along with the measurement procedure, environmental conditions, and microscope settings to be carried out correctly in order to arrive at the stated performance characteristics.

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Microscopes — Designation of microscope objectives —

Part 4: Polarization characteristics

1 Scope

This document specifies the use of the marking on objectives for polarization microscopes and defines measurands and measurement procedures of polarization characteristics of the objectives for qualitative polarization imaging. These measurements are defined on the image plane of the objective lens.

This marking is consistent with ISO 8578.

NOTE This document does not apply to objectives exclusively used on stereomicroscopes.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 10934, *Microscopes — Vocabulary for light microscopy*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 10934 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
extinction ratio
ratio of transmitted intensity through parallel polars to the transmitted intensity through crossed polars

4 Requirements

4.1 General

For quantitative polarization observation, it is necessary to use an objective lens that has little influence on the observation. The level of influence can be confirmed by measuring the value of the extinction ratio of the objective lens. The objectives named “POL“, “PO“ or “P” shall satisfy the requirements in 4.3.

4.2 Extinction ratio

Extinction ratio shall be obtained by following Formula (1):

$$r_e = P_{parallel}/P_{cross} \quad (1)$$

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