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Microbeam analysis — Scanning electron microscopy — Vocabulary

*Analyse par microfaisceaux — Microscopie électronique à balayage —
Vocabulaire*



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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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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 22493 was prepared by Technical Committee ISO/TC 202, *Microbeam analysis*, Subcommittee SC 1, *Terminology*.

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Introduction

The scanning electron microscopy (SEM) technique is used to observe and characterize the surface morphology and structure of solid materials, including metal alloys, ceramics, glasses, minerals, polymers, powders, etc., on a spatial scale of micrometer down to nanometer laterally. In addition, three-dimensional structure can be generated by using a combination of focused ion beam and scanning-electron-based analysis techniques. The SEM technique is based on the physical mechanism of electron optics, electron scattering and secondary electron emission.

As a major sub-field of microbeam analysis (MBA), the SEM technique is widely applied in diverse sectors (high-tech industries, basic industries, metallurgy and geology, biology and medicine, environmental protection, trade, etc.) and has a strong business base that needs standardization.

Standardizing the terminology of a technical field is one of the basic prerequisites for development of standards on other aspects of that field.

This International Standard is relevant to the need for an SEM terminology that contains consistent definitions of terms as they are used in the practice of scanning electron microscopy by the international scientific and engineering communities that employ the technique. This International Standard is the second one developed in a package of standards on electron probe microanalysis (EPMA), scanning electron microscopy (SEM), analytical electron microscopy (AEM), energy-dispersive X-ray spectroscopy (EDS), etc., developed or to be developed by Technical Committee ISO/TC 202, *Microbeam analysis*, Subcommittee SC 1, *Terminology*, to cover the complete field of MBA.