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This standard includes the English version of the European Standard.

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Metallic coatings - Measurement of coating thickness - Scanning electron microscope method (ISO 9220:2022)

Revêtements métalliques - Mesurage de l'épaisseur de revêtement - Méthode au microscope électronique à balayage (ISO 9220:2022)

Metallische Überzüge - Messung der Schichtdicke - Verfahren mit Rasterelektronenmikroskop (ISO 9220:2022)

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European foreword

This document (EN ISO 9220:2022) has been prepared by Technical Committee ISO/TC 107 "Metallic and other inorganic coatings" in collaboration with Technical Committee CEN/TC 262 “Metallic and other inorganic coatings, including for corrosion protection and corrosion testing of metals and alloys” the secretariat of which is held by BSI.

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INTERNATIONAL STANDARD

ISO 9220

Second edition
2022-02

Metallic coatings — Measurement of coating thickness — Scanning electron microscope method

Revêtements métalliques — Mesurage de l'épaisseur de revêtement — Méthode au microscope électronique à balayage

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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.

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This document was prepared by Technical Committee ISO/TC 107, *Metallic and other inorganic coatings,* in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 262, *Metallic and other inorganic coatings,* in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This second edition cancels and replaces the first edition (ISO 9220:1988), which has been technically revised.

The main changes are as follows:

— addition of two further calibration methods in 5.2, 8.2, and 8.3;

— deletion of technically outdated content concerning instability of SEMs and analogue photos or concerning the operation of SEMs [removal of old Subclauses 6.11, 6.12, 6.13, 8.4, 9.2.1, 9.2.2, 9.3, A.2.3, A.3.2, A.3.3, A.3.4, and A.3.7; revision of item e) in Clause 12];

— discussion of influences of imaging parameters on measurement uncertainty (new 6.11);

— revision of Clause 10 and addition of Annex B with precision data from round robin tests;

— revision of Annex A to (re-) align it with ISO 1463:2021;

— adding a bibliography with informative references.

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INTERNATIONAL STANDARD ISO 9220:2022(E)

Metallic coatings — Measurement of coating thickness — Scanning electron microscope method

1 Scope

This document specifies a destructive method for the measurement of the local thickness of metallic and other inorganic coatings by examination of cross-sections with a scanning electron microscope (SEM). The method is applicable for thicknesses up to several millimetres, but for such thick coatings it is usually more practical to use a light microscope (see ISO 1463). The lower thickness limit depends on the achieved measurement uncertainty (see Clause 10).

NOTE The method can also be used for organic layers when they are neither damaged by the preparation of the cross-section nor by the electron beam during imaging.

2 Normative references

There are no normative references in this document.

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