SLOVENSKI STANDARD
SIST EN ISO 27874:2008/oprA1:2027

01-januar-2027

Kovinske in druge anorganske prevleke - Galvansko nanašanje prevlek iz zlata in njegovih zlitin za uporabo na področju elektrike, elektronike in inženirstva - Specifikacija in preskusne metode - Dopolnilo A1 (ISO 27874:2008/DAmd1:2026)

Metallic and other inorganic coatings - Electrodeposited gold and gold alloy coatings for electrical, electronic and engineering purposes - Specification and test methods - Amendment 1 (ISO 27874:2008/DAmd1:2026)

Metallische und andere anorganische Überzüge - Galvanische Gold- und Goldlegierungsüberzüge für elektrische, elektronische und technische Zwecke - Anforderungen und Prüfverfahren - Änderung 1 (ISO 27874:2008/DAmd 1:2026)

Revêtements métalliques et autres revêtements inorganiques - Dépôts électrolytiques d'or et d'alliages d'or pour usages électrique, électronique et industriels - Spécification et méthodes d'essai - Amendement 1 (ISO 27874:2008/DAmd1:2026)

Ta slovenski standard je istoveten z: **EN ISO 27874:2008/prA1:2026**

ICS:

25.220.40	Kovinske prevleke	Metallic coatings

SIST EN ISO 27874:2008/oprA1:2027 **en,fr,de**

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International Standard

ISO 23131-2

Ellipsometry —

Part 2: Bulk material model

Ellipsométrie —

Partie 2: Modèle matériel volumique

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First edition
2026-01

Reference number
ISO 23131-2:2026(en)

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CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
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This document was prepared by Technical Committee ISO/TC 107, *Metallic and other inorganic coatings*, in collaboration with ISO/TC 35, *Paints and varnishes*, SC 9, *General test methods for paints and varnishes*.

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Introduction

The ellipsometry measuring method is a phase-sensitive reflection technique using polarized light in the optical far-field. Ellipsometry has been established as a non-invasive measuring method in the field of semiconductor technology, in particular the field of integrated production. The method was originally conceived as a single-wavelength measuring method, then as a multiple-wavelength and later as a spectroscopic measuring method.

Ellipsometry can be used to determine optical or dielectric constants of any material as well as the layer thicknesses of at least semi-transparent layers or layer systems. Ellipsometry is an indirect measuring method, the analysis of which is based on model optimization. The measurands, which differ according to the procedural principle, are converted into the ellipsometric transfer quantities Ψ (psi, amplitude information) and Δ (delta, phase information). The physical target quantities of interest (optical or dielectric constants, layer thicknesses) are determined based on these measurands by means of a parameterized fit.

Ellipsometry shows a high precision regarding the ellipsometric transfer quantities Ψ and Δ, which can be equivalent to a layer thickness sensitivity of 0,1 nm for ideal layer substrate systems. As a result, the measuring method can detect even the slightest discrepancies in surface characteristics. This is closely linked to the homogeneity and the isotropy of the material surface. In order to achieve high precision, carrying out measurements at the exact same measuring point is a prerequisite for inhomogeneous materials. The same applies to the orientation of the incident plane relative to the material surface for anisotropic materials.

For the bulk material model, a fitting procedure is optional since exactly two independent parameters can be determined per measurement (per wavelength and at one angle of incidence) using the formula system consisting of formulae for p- and s-polarization. This, moreover, is the only case where a determination of target figures (optical or dielectric constants) can be carried out analytically.

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