
**Surface chemical analysis — Analysis of
zinc- and/or aluminium-based metallic
coatings by glow-discharge optical-
emission spectrometry**

*Analyse chimique des surfaces — Analyse des revêtements métalliques
à base de zinc et/ou d'aluminium par spectrométrie d'émission optique
à décharge lumineuse*



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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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Surface chemical analysis — Analysis of zinc- and/or aluminium-based metallic coatings by glow-discharge optical-emission spectrometry

1 Scope

This International Standard specifies a glow discharge optical emission spectrometric method for the determination of the thickness, mass per unit area and chemical composition of metallic surface coatings consisting of zinc- and/or aluminium-based materials. The alloying elements considered are nickel, iron, silicon, lead and antimony.

This method is applicable to

zinc contents between 0,01 mass % and 100 mass %;

aluminium contents between 0,01 mass % and 100 mass %;

nickel contents between 0,01 mass % and 20 mass %;

iron contents between 0,01 mass % and 20 mass %;

silicon contents between 0,01 mass % and 10 mass %;

lead contents between 0,005 mass % and 2 mass %;

antimony contents between 0,005 mass % and 2 mass %.

2 Normative references

The following referenced documents are indispensable for the application 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 14707, *Surface chemical analysis — Glow discharge optical emission spectrometry (GD-OES) — Introduction to use*

ISO 14284, *Steel and iron — Sampling and preparation of samples for the determination of chemical composition*

ISO 17925, *Zinc and/or aluminium based coatings on steel — Determination of coating mass per unit area and chemical composition — Gravimetry, inductively coupled plasma atomic emission spectrometry and flame atomic absorption spectrometry*

3 Principle

The analytical method described here involves the following processes:

- a) Cathodic sputtering of the surface coating in a direct current or radio frequency glow discharge device.