SLOVENSKI STANDARD
oSIST prEN 14726:2026

01-april-2026

Aluminij in aluminijeve zlitine - Ugotavljanje kemijske sestave aluminija in aluminijevih zlitin z optično emisijsko spektrometrijo z iskro

Aluminium and aluminium alloys - Determination of the chemical composition of aluminium and aluminium alloys by spark optical emission spectrometry

Aluminium und Aluminiumlegierungen - Bestimmung der chemischen Zusammensetzung von Aluminium und Aluminiumlegierungen durch optische Emissionsspektrometrie mit Funkenanregung

Aluminium et alliages d'aluminium - Détermination de la composition chimique de l'aluminium et des alliages d'aluminium par spectrométrie d'émission optique à étincelles

Ta slovenski standard je istoveten z: **prEN 14726**

ICS:

77.040.30	Kemijska analiza kovin	Chemical analysis of metals
77.120.10	Aluminij in aluminijeve zlitine	Aluminium and aluminium alloys

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EUROPEAN STANDARD

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Will supersede EN 14726:2019

English Version

Aluminium and aluminium alloys - Determination of the chemical composition of aluminium and aluminium alloys by spark optical emission spectrometry

Aluminium et alliages d'aluminium - Détermination de la composition chimique de l'aluminium et des alliages d'aluminium par spectrométrie d'émission optique à étincelles

Aluminium und Aluminiumlegierungen - Bestimmung der chemischen Zusammensetzung von Aluminium und Aluminiumlegierungen durch optische Emissionsspektrometrie mit Funkenanregung

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 132.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

This draft European Standard was established by CEN in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (prEN 14726:2026) has been prepared by Technical Committee CEN/TC 132 “Aluminium and aluminium alloys”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 14726:2019.

prEN 14726:2026 includes the following significant technical changes with respect to EN 14726:2019:

— deletion of the sentence about the determination of mercury content from Scope as being a recommendation;

— rewording of Subclause 10.2;

— rewording of Subclause 10.3;

— deletion of Subclause 10.5;

— minor text updates in Clauses 7.2, 9 and 13;

— introduction of requirements regarding reference materials in Table B.1;

— rewording of Subclause B.3.1;

— rewording of last paragraph, Subclause C.1;

— deletion of Subclause C.3;

— updated Bibliography.

Introduction

In spark optical emission spectrometry (S-OES), a small portion of the sample is thermally vaporized through the erosion of an electric spark. In the spark discharge, the aerosol is vaporized, partially ionized and excited to emit optical radiation. The characteristic radiation of each element is used in spark optical emission spectrometry for its detection and for its quantitative determination.

Optical emission spectrometry (OES): A technique that measures the emission characteristic of a material in the ultraviolet, visible, or infrared wavelength regions of the electromagnetic spectrum. Atomised particles are excited, and each element emits a characteristic radiant energy. This characteristic radiation is detected using either a photomultiplier tube or a solid state detector; appropriate software is used to record the presence of elements and to quantitatively determine elemental content.

Spark optical emission spectrometry (S-OES): A technique that utilizes a high voltage capacitor discharge to ablate and atomise a section of the tested material in an inert atmosphere. The excited atoms and ions emit electromagnetic radiation, which is detected and analysed by an optical emission spectrometer.

Spark optical emission spectrometry is suitable for determining the chemical composition of alloys before the manufacturing and casting processes: in these cases, samples are taken from the liquid metal at different stages of the casting process. Spark optical emission spectrometry is also used to determine the chemical composition of final products.

The method covered by this document is primarily for the analysis of aluminium or aluminium alloy chill cast solid samples, as described in EN 14361, although other samples forms are acceptable.

1 Scope

This document describes the criteria and the procedure for analysing aluminium and aluminium alloys with spark optical emission spectrometry (S-OES). This document specifies the following:

— sample preparation;

— operational guidelines for an optical emission spectrometer (including maintenance);

— traceability of the analytical results to the International System of units: mass (kg);

— assessing the uncertainty associated with each analytical result.

This document refers to simultaneous spark emission spectrometers for the analysis of solid samples.

This document applies to the determination of silicon, iron, copper, manganese, magnesium, chromium, nickel, zinc, titanium, boron, gallium, vanadium, beryllium, bismuth, calcium, cadmium, cobalt, lithium, sodium, phosphorus, lead, antimony, tin, strontium and zirconium in aluminium and aluminium alloys.

This document is applicable to the determination of elements other than those listed above with the following conditions:

a) suitable reference materials are available; and

b) the instrument is suitably calibrated and equipped.

The test result obtained from a spark optical emission spectrometer generally concerns an amount of less than one milligram per spark spot. The result can be used to refer to the laboratory test sample, to the aluminium or aluminium alloy melt or to the cast product.

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.

EN 12258-2, *Aluminium and aluminium alloys - Terms and definitions - Part 2: Chemical analysis*

EN 14361, *Aluminium and aluminium alloys - Chemical analysis - Sampling from metal melts*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 12258-2 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/

4 Symbols and abbreviations

Symbols are defined for each formula. Abbreviations are put in brackets immediately after a term first appears in the text (e.g. S-OES).