Zinc and zinc alloys –
Part 1: Analysis of solid samples by optical emission spectrometry (ISO 3815-1:2005)

Denna standard, tillsammans med SS-EN 3815-2, utgåva 1, ersätter SS-EN 12019, utgåva 1.


This standard together with SS-EN ISO 3815-2, edition 1, supersedes the Swedish Standard SS-EN 12019, edition 1.
Zinc and zinc alloys - Part 1: Analysis of solid samples by optical emission spectrometry (ISO 3815-1:2005)

Zinc et alliages de zinc - Partie 1: Analyse d'échantillons massifs par spectrométrie d'émission optique (ISO 3815-1:2005)

Zink und Zinklegierungen - Teil 1: Optische Emissionspektrometrie an festen Proben (ISO 3815-1:2005)

This European Standard was approved by CEN on 12 April 2005.

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Foreword

This document (EN ISO 3815-1:2005) has been prepared by Technical Committee ISO/TC 18 "Zinc and zinc alloys" in collaboration with Technical Committee CEN/TC 209 "Zinc and zinc alloys", the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2005, and conflicting national standards shall be withdrawn at the latest by November 2005.

This document supersedes EN 12019:1997.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Endorsement notice

The text of ISO 3815-1:2005 has been approved by CEN as EN ISO 3815-1:2005 without any modifications.
Zinc and zinc alloys —

Part 1:
Analysis of solid samples by optical emission spectrometry

1 Scope
This part of ISO 3815 specifies analytical methods for determining the chemical composition of zinc and zinc alloys in accordance with ISO 301 and ISO 752 by optical emission spectrometry.

This part of ISO 3815 includes recommendations for preparation of test pieces from zinc and zinc alloys.

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 301, Zinc alloy ingots intended for casting

ISO 752:2004, Zinc ingots

ISO 20081:—1), Zinc and zinc alloys — Method of sampling — Specifications

3 Terms and definitions
For the purposes of this document, the terms and definitions given in ISO 301, ISO 752, ISO 20081 and the following apply.

3.1 optical emission spectrometry
measurement of the intensity of electromagnetic radiation emitted by the components of a sample when excited

NOTE Each element emits radiation of well defined and specific wavelength, whose intensity is linked to its concentration.

4 Sampling
Sampling shall be in accordance with ISO 20081:—1), 7.1.

1) To be published.
5 Preparation of test pieces

Test pieces shall be prepared so that they are suitable for optical emission spectrometry. The shape and size of test pieces are dependent upon the sample holder and apparatus used. The surface of test pieces shall be prepared according to requirements given in the operation manual of the apparatus used.

6 Test procedure

6.1 General

Analysis shall be carried out by optical emission spectrometry using solid test pieces prepared in accordance with Clause 5. For analysis of the impurities and alloying elements in zinc and zinc alloys as defined in ISO 301 and ISO 752 by optical emission spectrometry, different analytical lines can be used. A list of appropriate wavelengths of analytical lines is given in Annex A.

Which of the different analytical lines is used depends on the analytical programme and the type of spectrometer.

The reproducibility of the apparatus used shall be in accordance with the values given in Annex B.

6.2 Calibration

The apparatus used shall be suitable for the detection and determination of all elements specified in the relevant product standard (see 6.1).

For the calibration of the spectrometer, certified reference materials (CRM) should be used primarily, reference materials (RM) secondarily and internal reference materials (IRM) last of all.

If IRMs are used, their chemical composition shall be determined by the methods of analysis as specified in 8.1 of ISO 752:2004.

The apparatus shall be re-calibrated within a reasonable time. The reference samples used for re-calibrating the apparatus shall have physical and chemical properties similar to the sample to be analysed.

6.3 Method of testing

In general, each test piece shall be tested at least two times. If heterogeneity or malfunction of the spectrometer is suspected, additional tests shall be performed on the same sample using a new surface.

NOTE In the specific case of producer labs, if sampling frequency is high enough and historical data supports it, each test piece need only be tested once, provided that the result for the lot to be analysed is the average of at least two tests.

6.4 Expression of results

Test results shall be expressed as mass fraction, calculated as the arithmetic mean of all valid single results of the test sequence according to 6.3, excluding failing single test.

Results shall be expressed as defined in ISO 301 and ISO 752.