

**Zink och zinklegeringar – Kemiska
analyismetoder –**

Del 1: Bestämning av aluminium i
zinklegeringar med titrimetrisk metod

Zinc and zinc alloys – Chemical analysis –

Part 1: Determination of aluminium in zinc alloys –
Titrimetric method

Europastandarden EN 12441-1:2001 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av EN 12441-1:2001.

The European Standard EN 12441-1:2001 has the status of a Swedish Standard. This document contains the official English version of EN 12441-1:2001.

Dokumentet består av 10 sidor.

Upplysningar om **sakinnehållet** i standarden lämnas av SIS, Swedish Standards Institute, tel 08 - 555 520 00.

Standarder kan beställas hos SIS Förlag AB som även lämnar **allmänna upplysningar** om svensk och utländsk standard.

Postadress: SIS Förlag AB, 118 80 STOCKHOLM
Telefon: 08 - 555 523 10. *Telefax:* 08 - 555 523 11
E-post: sis.sales@sis.se. *Internet:* www.sisforlag.se

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 12441-1

October 2001

ICS 77.040.30; 77.120.60

English version

Zinc and zinc alloys - Chemical analysis - Part 1: Determination of aluminium in zinc alloys - Titrimetric method

Zinc et alliages de zinc - Analyse chimique - Partie 1:
Dosage de l'aluminium dans les alliages de zinc - Méthode
titrimétrique

Zink und Zinklegierungen - Chemische Analyse - Teil 1:
Bestimmung von Aluminium in Zinklegierungen -
Titrimetrisches Verfahren

This European Standard was approved by CEN on 11 August 2001.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents

	page
Foreword.....	3
1 Scope	4
2 Normative references	4
3 Terms and definitions.....	4
4 Principle	4
5 Reagents	4
6 Apparatus	5
7 Sampling	5
8 Procedure	5
9 Calculation and expression of results.....	6
10 Test report	7
Annex A (informative) Additional information on round - Robin tests	8
Annex B (informative) Graphical representation of precision data.....	9

Foreword

This European Standard has been prepared by 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 April 2002, and conflicting national standards shall be withdrawn at the latest by April 2002.

Within its programme of work, Technical Committee CEN/TC 209 entrusted CEN/TC 209/WG 6 "Methods of analysis and testing" with the preparation of the following document:

EN 12441-1, *Zinc and zinc alloys - Chemical analysis - Part 1: Determination of aluminium in zinc alloys – Titrimetric method.*

This standard is part of a series of eleven standards. The other standards are:

- *Part 2 : Determination of magnesium in zinc alloys – Flame atomic absorption spectrometric method*
- *Part 3 : Determination of lead, cadmium and copper - Flame atomic absorption spectrometric method*
- *Part 4 : Determination of iron in zinc alloys - Spectrophotometric method*
- *Part 5 : Determination of iron in primary zinc - Spectrophotometric method*
- *Part 6 : Determination of aluminium and iron - Flame atomic absorption spectrometric method*
- *Part 7 : Determination of tin - Flame atomic absorption spectrometric method after extraction*
- *Part 8 : Determination of tin in secondary zinc - Flame atomic absorption spectrometric method*
- *Part 9 : Determination of nickel in zinc alloys - Flame atomic absorption spectrometric method*
- *Part 10 : Determination of chromium and titanium in zinc alloys – Spectrophotometric method*
- *Part 11 : Determination of silicon in zinc alloys - Spectrophotometric method*

The annexes A and B are informative.

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

EN 12441-1:2001 (E)

1 Scope

This European Standard specifies a titrimetric method for the determination of aluminium in zinc alloys. It is applicable to the products specified in EN 1774 and EN 12844.

It is suitable for the determination of aluminium contents (mass fractions) between 3 % and 30 %.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies (including amendments).

EN 1774, *Zinc and zinc alloys - Alloys for foundry purposes - Ingot and liquid.*

EN 12060, *Zinc and zinc alloys - Method of sampling - Specifications.*

EN 12844, *Zinc and zinc alloys - Castings - Specifications.*

ISO 5725-1, *Accuracy (trueness and precision) of measurement methods and results - Part 1: General principles and definitions.*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 12060 apply.

4 Principle

An excess of EDTA is added to the hydrochloric solution of a test portion. This is followed by quantitative complexing of the excess with a standard zinc solution. The aluminium-EDTA complex is decomposed with sodium fluoride and the liberated EDTA is titrated against a standard zinc solution.

5 Reagents

5.1 General

During the test, use only reagents of known analytical grade and distilled or demineralized water.

5.2 Hydrochloric acid, $\rho = 1,19$ g/ml

5.3 Nitric acid, $\rho = 1,4$ g/ml

5.4 Hydrochloric acid (1 + 1)

Mix 1 volume of hydrochloric acid (5.2) with 1 volume of water.

5.5 Hydrogen peroxide, 30 % (mass fraction)

5.6 Hydroxylammonium chloride, 200 g/l solution

5.7 Ethylenediamine tetra-acetic acid disodium salt (EDTA), 65 g/l solution