
International Standard



5196/1

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Magnesium alloys — Determination of thorium — Part 1 : Gravimetric method

Alliages de magnésium — Dosage du thorium — Partie 1 : Méthode gravimétrique

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 5196/1 was developed by Technical Committee ISO/TC 79, *Light metals and their alloys*, and was circulated to the member bodies in August 1979.

It has been approved by the member bodies of the following countries :

Australia	India	South Africa, Rep. of
Austria	Italy	Spain
China	Japan	Sweden
Czechoslovakia	Norway	United Kingdom
France	Philippines	USSR
Germany, F. R.	Portugal	Yugoslavia
Hungary	Romania	

No member body expressed disapproval of the document.

Magnesium alloys — Determination of thorium —

Part 1 : Gravimetric method

1 Scope and field of application

This International Standard specifies a gravimetric method for the determination of thorium in magnesium alloys.

The method is applicable to products having thorium contents between 0,2 and 5,0 % (*m/m*).

2 Principle

Dissolution of a test portion in hydrochloric acid.

Preliminary separation of the thorium in the form of its benzoate.

Dissolution of the precipitate and reprecipitation of the thorium in the form of its oxalate. Calcination and weighing of the thorium oxide.

3 Reagents

During the analysis, use only reagents of recognized analytical quality and only distilled water or water of equivalent purity.

3.1 Hydroxylammonium chloride ($\text{NH}_2\text{OH}\cdot\text{HCl}$).

3.2 Ammonium chloride (NH_4Cl).

3.3 Hydrochloric acid (ρ approximately 1,19 g/ml), 38 % (*m/m*) or approximately 12 mol/l solution.

3.4 Hydrochloric acid (ρ approximately 1,05 g/ml) or approximately 3 mol/l solution.

Dilute 250 ml of the hydrochloric acid solution (3.3) with water, make up the volume to 1 000 ml and mix.

3.5 Ammonium hydroxide solution (ρ approximately 0,97 g/ml).

Dilute 250 ml of ammonium hydroxide solution (ρ approximately 0,91 g/ml) with water, make up the volume to 1 000 ml and mix.

3.6 Benzoic acid, 20 g/l solution.

Dissolve 20 g of benzoic acid ($\text{C}_6\text{H}_5\text{COOH}$) in hot water. Allow to cool, filter if necessary, make up the volume to 1 000 ml and mix.

3.7 Benzoic acid, 2,5 g/l solution.

Dissolve 2,5 g of benzoic acid ($\text{C}_6\text{H}_5\text{COOH}$) in hot water, make up the volume to 1 000 ml and mix.

3.8 Oxalic acid, saturated solution at ambient temperature.

Dissolve 150 g of oxalic acid [$(\text{COOH})_2\cdot 2\text{H}_2\text{O}$] in 1 000 ml of hot water. Allow to cool and filter.

3.9 Oxalic acid washing solution.

Dilute 70 ml of the oxalic acid solution (3.8) to 500 ml with water.

3.10 Bromophenol blue, 4 g/l alkaline solution.

Place 0,4 g of bromophenol blue in a mortar, add 8,25 ml of 5 g/l sodium hydroxide solution and crush until completely dissolved. Transfer quantitatively into a 100 ml one-mark volumetric flask, make up to the mark with water and mix.

4 Apparatus

Ordinary laboratory apparatus.

5 Sampling

5.1 Laboratory sample¹⁾

5.2 Test sample

Chips having a thickness no greater than 1 mm, obtained by milling or drilling the laboratory sample.

1) The sampling of magnesium and magnesium alloys will form the subject of a future International Standard.