

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 1784

CHEMICAL ANALYSIS OF ALUMINIUM AND ITS ALLOYS
DETERMINATION OF ZINC
VOLUMETRIC METHOD

1st EDITION

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BRIEF HISTORY

The ISO Recommendation R 1784, *Chemical analysis of aluminium and its alloys – Determination of zinc – Volumetric method*, was drawn up by Technical Committee ISO/TC 79, *Light metals and their alloys*, the Secretariat of which is held by the Association Française de Normalisation (AFNOR).

Work on this question led to the adoption of Draft ISO Recommendation No. 1784 which was circulated to all the ISO Member Bodies for enquiry in January 1969. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Australia	Italy	Spain
Belgium	Japan	Sweden
Czechoslovakia	Korea, Rep. of	Switzerland
Germany	Netherlands	Thailand
Greece	New Zealand	Turkey
Hungary	Norway	U.A.R.
India	Peru	United Kingdom
Iran	Poland	U.S.A.
Israel	South Africa, Rep. of	

The following Member Bodies opposed the approval of the Draft :

Canada
France

This Draft ISO Recommendation was then submitted by correspondence to the ISO Council which decided to accept it as an ISO RECOMMENDATION.

CHEMICAL ANALYSIS OF ALUMINIUM AND ITS ALLOYS

DETERMINATION OF ZINC

VOLUMETRIC METHOD

1. SCOPE

This ISO Recommendation describes a volumetric method for the determination of zinc in aluminium alloys not containing cadmium.

This method is applicable to the determination of zinc contents between 0.10 and 12 %.

2. PRINCIPLE

- 2.1 Hydrochloric acid attack and elimination of the excess of acid by evaporation. Taking up of the residue in hydrochloric acid solution (2 N) and passage of the solution through a strongly basic anion exchange resin.
- 2.2 Elution of the zinc absorbed on the resin with hydrochloric acid solution (0.005 N)
- 2.3 Titration of the zinc by EDTA standard solution using dithizone indicator.

3. REAGENTS

- 3.1 *Strongly basic anion exchange resin*, either heteroporous or isoporous, of the polystyrene type with quaternary ammonium groups (for example Dowex 1 × 2, De-Acidite FF SRA 62 or equivalent) in the chloride form, containing from 2 to 3 % cross linking (expressed as a percentage by mass of D.V.B. (divinylbenzene) and preferably with a particle size between 150 and 295 μm (- 52 + 100 mesh).
- 3.2 *Acetone* ($d =$ approximately 0.79).
- 3.3 *Hydrochloric acid* ($d =$ approximately 1.10), solution approximately 6 N.
Dilute 515 ml of hydrochloric acid ($d =$ approximately 1.18) approximately 12 N, with water and make up the volume to 1000 ml.
- 3.4 *Hydrochloric acid* ($d =$ approximately 1.03), solution approximately 2 N.
Dilute 170 ml of hydrochloric acid ($d =$ approximately 1.18), approximately 12 N, with water and make up the volume to 1000 ml.
- 3.5 *Hydrochloric acid* ($d =$ approximately 1.01), solution approximately N.
Dilute 85 ml of hydrochloric acid ($d =$ approximately 1.18) approximately 12 N, with water and make up the volume to 1000 ml.
- 3.6 *Hydrochloric acid*, solution approximately 0.005 N.
Dilute 5 ml of hydrochloric acid (3.5) with water and make up the volume to 1000 ml.
- 3.7 *Nitric acid* ($d =$ approximately 1.4), solution approximately 67 % (m/m) or 15 N.
- 3.8 *Hydrogen peroxide* ($d =$ approximately 1.135), solution approximately 36 % (m/m).
- 3.9 *Ammonia* ($d =$ approximately 0.90), solution approximately 28 % (m/m) or 14 N.