International Standard 6467

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

Ferrovanadium — Determination of vanadium content — Potentiometric method

Ferrovanadium — Dosage du vanadium — Méthode potentiométrique

First edition — 1980-07-15

UDC 669.15.292-198 : 543.257.1 : 546.881 **Ref. No. ISO 6467-1980 (E)**

Descriptors : ferroalloys, ferrovanadium, vanadium, chemical analysis, determination of content, potentiometric analysis.

Price based on 3 pages

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 6467 was developed by Technical Committee ISO/TC 132, *Ferroalloys*, and was circulated to the member bodies in August 1978.

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

Austria	Germany, F.R.	South Africa, Rep. of
Brazil	India	Spain
Bulgaria	Italy	Sweden
Canada	Japan	United Kingdom
Chile	Mexico	USA
Czechoslovakia	Netherlands	USSR
Egypt, Arab Rep. of	Poland	Yusoslavia
France	Romania	

No member body expressed disapproval of the document.

Ferrovanadium — Determination of vanadium content — Potentiometric method

1 Scope and field of application

This International Standard specifies a potentiometric method for the determination of the vanadium content of ferrovanadium.

The method applies to alloys having a vanadium content less than or equal to 85 % (*m/m*).

2 Reference

ISO 3713, *Ferroalloys — Sampling and preparation of samples — General rules.*[1)]

3 Principle

Dissolution of a test portion with nitric and sulphuric acids. Cold oxidation of the vanadium(IV) to vanadium(V) by a slight excess of potassium permanganate. Destruction of the excess of potassium permanganate by potassium nitrite, the excess of the latter being itself destroyed by urea. Reduction of the vanadium(V) to vanadium(IV) by iron(II) in a potentiometric titration.

4 Reagents

During the analysis, use only reagents of recognized analytical grade, and only distilled water or water of equivalent purity, except where otherwise specified.

4.1 Urea.

4.2 Nitric acid, ϱ 1,38 to 1,42 g/ml.

4.3 Phosphoric acid.

4.4 Sulphuric acid, 50 % (*V/V*) solution, rendered inert to potassium permanganate by adding a slight excess of this reagent.

To 400 ml of water, add cautiously 500 ml of sulphuric acid (ϱ approximately 1,84 g/ml); mix, cool, dilute to 1 000 ml and mix.

4.5 Potassium nitrite, 10 g/l solution.

Dissolve 10 g of potassium nitrite in water, dilute to 1 000 ml and mix.

4.6 Potassium permanganate, 6,3 g/l solution.

Dissolve 6,3 g of potassium permanganate in water, dilute to 1 000 ml and mix.

4.7 Potassium dichromate, standard solution, $c(K_2Cr_2O_7) = 0{,}2$ mol/l.

Weigh, to the nearest 0,000 5 g, exactly 9,806 4 g of potassium dichromate, previously oven-dried at 105 °C. Dissolve with water in a 1 000 ml volumetric flask. Dilute to the mark and mix.

4.8 Ammonium iron(II) sulphate, standard volumetric solution, $c[FeSO_4(NH_4)_2SO_4] \approx 0{,}2$ mol/l.

4.8.1 Preparation

In a 1 000 ml volumetric flask, dissolve 78,4 g of ammonium iron(II) sulphate [$FeSO_4(NH_4)_2SO_4.6H_2O$] with 500 ml of warm water.

When the dissolution is complete, add 100 ml of the sulphuric acid (4.4), cool, dilute to the mark and mix.

1) At present at the stage of draft.