
International Standard



6352

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Ferronickel — Determination of nickel content — Dimethylglyoxime gravimetric method

Ferro-nickel — Dosage du nickel — Méthode gravimétrique à la diméthylglyoxime

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 6352 was prepared by Technical Committee ISO/TC 155, *Nickel and nickel alloys*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

Ferronickel — Determination of nickel content — Dimethylglyoxime gravimetric method

1 Scope and field of application

This International Standard specifies a gravimetric method for the determination of the nickel content of ferronickel in the range 15 to 60 % (m/m).

2 References

ISO 385/1, *Laboratory glassware — Burettes — Part 1: General requirements.*

ISO 648, *Laboratory glassware — One-mark pipettes.*

ISO 1042, *Laboratory glassware — One-mark volumetric flasks.*

ISO 5725, *Precision of test methods — Determination of repeatability and reproducibility by inter-laboratory tests.*

3 Principle

Dissolution of a test portion in nitric acid. Precipitation of silica by dehydration in perchloric acid. Removal of silica by filtration. Precipitation of nickel from a tartro-ammoniacal medium by an ethanolic solution of dimethylglyoxime. A second precipitation of nickel and weighing after drying at 150 °C. Determination of residual nickel in the filtrates by atomic absorption spectrometry.

4 Reagents

During the analysis, unless otherwise stated, use only reagents of recognized analytical grade and only distilled water or water of equivalent purity.

4.1 Acetic acid, $\rho_{20} = 1,05$ g/ml, diluted 1 + 1.

4.2 Ammonium hydroxide, $\rho_{20} = 0,925$ g/ml.

4.3 Dimethylglyoxime, 10 g/l solution in ethanol.

4.4 Hydrochloric acid, $\rho_{20} = 1,19$ g/ml.

4.5 Hydrochloric acid, $\rho_{20} = 1,19$ g/ml, diluted 1 + 9.

4.6 Nitric acid, $\rho_{20} = 1,41$ g/ml.

4.7 Nitric acid, $\rho_{20} = 1,41$ g/ml, diluted 1 + 1.

4.8 Perchloric acid, $\rho_{20} = 1,61$ g/ml [72 % (m/m)].

4.9 Tartaric acid, 500 g/l solution.

4.10 Hydrofluoric acid, $\rho_{20} = 1,14$ g/ml, diluted 1 + 1.

WARNING — Hydrofluoric acid is extremely irritating and corrosive to skin and mucous membranes, producing severe skin burns which are slow to heal. In case of skin contact, wash well with water and seek medical advice.

5 Apparatus

Ordinary laboratory apparatus, and

5.1 Filtration crucible, fritted glass, of approximately 10 to 20 μm pore diameter.

5.2 Glass beakers, of capacity 600 ml, clean, unetched and flat bottomed.

5.3 Pipettes, of capacities 50 and 100 ml, in accordance with ISO 648, class A.

5.4 Volumetric flasks, of capacities 200 and 1 000 ml, in accordance with ISO 1042, class A.

5.5 Polytetrafluoroethylene (PTFE) beaker, of capacity 600 ml, for samples with a high silicon content.

6 Sampling and samples

6.1 Sampling and preparation of the laboratory sample shall be carried out by normal agreed procedures or, in case of dispute, by the relevant International Standard.

6.2 The laboratory sample normally is in the form of granules, millings or drillings and no further preparation of the sample is necessary.