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INTERNATIONAL STANDARD 620

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

Manganese ores — Determination of zinc content — Polarographic method (zinc content between 0,005 and 0,1 %)

Minerais de manganèse — Dosage du zinc — Méthode polarographique (teneur en zinc comprise entre 0,005 et 0,1 %)

First edition — 1975-01-15

To be withdrawn

UDC 669.74 : 543.253 : 546.47

Ref. No. ISO 620-1975 (E)

Descriptors : manganese ores, chemical analysis, determination of content, zinc, polarographic 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.

Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; these documents are now in the process of being transformed into International Standards. As part of this process, Technical Committee ISO/TC 65 has reviewed ISO Recommendation R 620 and found it technically suitable for transformation. International Standard ISO 620 therefore replaces ISO Recommendation R 620-1967 to which it is technically identical.

ISO Recommendation R 620 was approved by the Member Bodies of the following countries :

Austria	India	Switzerland
Chile	Italy	Turkey
Czechoslovakia	Korea, Rep. of	United Kingdom
Egypt, Arab Rep. of	Netherlands	U.S.S.R.
Germany	Poland	Yugoslavia
Greece	Romania	
Hungary	Spain	

The Member Body of the following country expressed disapproval of the Recommendation on technical grounds :

France

The Member Body of the following country disapproved the transformation of ISO/R 620 into an International Standard :

Bulgaria

Printed in Switzerland

Manganese ores — Determination of zinc content — Polarographic method (zinc content between 0,005 and 0,1 %)

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a polarographic method for the determination of the zinc content of manganese ores the zinc content of which is between 0,005 and 0,1 % (*m/m*).

2 REFERENCES

ISO 310, *Manganese ores — Determination of hygroscopic moisture in analytical samples — Gravimetric method.*

ISO . . ., *Manganese ores and concentrates — Sampling and sample preparation for chemical analysis and determination of moisture content.* [1)]

3 PRINCIPLE

Fusion of a test portion of the ore with sodium peroxide and extraction of the fused mass in water. Determination of the zinc in the solution by the polarographic method using ammonium chloride/ammonia background.

4 REAGENTS

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

4.1 Ammonium chloride.

4.2 Metallic zinc.

4.3 Sodium sulphite, crystalline ($Na_2SO_3.7H_2O$).

4.4 Sodium peroxide.

4.5 Ethanol.

4.6 Ammonia solution, ρ 0,91 g/ml.

4.7 Hydrochloric acid, ρ 1,19 g/ml.

4.8 Sulphuric acid, ρ 1,84 g/ml, diluted 1 : 1.

4.9 Agar-agar.

4.10 Ammonium chloride/ammonia mixture (background).

Place in a 750 ml beaker 100 g of ammonium chloride (4.1), 150 ml of ammonia solution (4.6), 0,25 g of agar-agar (4.9) (dissolved by heating in 100 ml of water), 100 g of sodium sulphite (4.3) and 300 ml of water; mix until the salts are dissolved, transfer the solution obtained to a 1 l volumetric flask, dilute with water up to the mark and mix.

4.11 Standard zinc solution.

Dissolve, while heating, 0,1 g of metallic zinc (4.2) in 10 ml of sulphuric acid (4.8), cool, transfer the solution to a 1 l volumetric flask, add 20 ml of sulphuric acid (4.8), dilute with water up to the mark and mix.

1 ml of the solution contains 0,000 1 g of zinc.

4.12 Methyl orange, 1 g/l solution.

5 APPARATUS

Ordinary laboratory apparatus and

5.1 Nickel or corundum crucibles.

5.2 Muffle furnace, capable of being maintained at 600 to 650 °C.

5.3 Polarograph.

1) This document, at present at the stage of draft proposal, is intended to complete and replace ISO/R 309, *Methods of sampling manganese ores — Part I — Ore loaded in freight wagons.*