भारतीय मानक ब्यूरो

DRAFT FOR WIDE CIRCULATION

भारतीय मानक मसौदा

लौह अयस्क — विभिन्न तत्वों का निर्धारण — इन्डक्टिवली कपल्ड प्लाज़्मा परमाणु उत्सर्जन स्पेक्ट्रोमेट्रिक पद्धति

Draft Indian Standard

Iron Ores — Determination of Various Elements — Inductively Coupled Plasma Atomic Emission Spectrometric Method

ICS 73.060.10

Methods of Chemical Analysis of Metals Sectional Committee, MTD 34	Last date of comments **11/09/2025**

NATIONAL FOREWORD

This draft standard is identical ISO 11535 : 2006 'Iron ores — Determination of various elements — Inductively coupled plasma atomic emission spectrometric method' issued by the International Organization for Standardization (ISO), and subject to its finalization, is to be adopted by the Bureau of Indian Standards on the recommendation of the Methods of Chemical Analysis of Metals Sectional Committee and approval of the Metallurgical Engineering Division Council.

The committee decided to adopt ISO 11535 : 2006 standard under dual numbering system.

The text of ISO standard has been approved as suitable for publication as an Indian Standard without deviations. Certain terminologies and conventions are, however, not identical with those used in Indian Standard. Attention is especially drawn to the following:

a) Wherever the words `International Standard' appear referring to this standard, it should be read as `Indian Standard'

b) Comma (,) has been used as a decimal marker while in Indian Standards the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to certain International Standards for which Indian Standards also exists. The corresponding Indian Standards which are to be substituted in their place are listed below along with their degree of equivalence for the edition indicated:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
ISO 648 : 2008 Laboratory glassware — Single-volume pipettes	IS 1117 : 2018/ISO 648 : 2008 Laboratory glassware — Single-volume pipettes (*second revision*)	Identical
ISO 1042 : 1998, Laboratory glassware — One-mark volumetric flasks	IS 915 : 2012/ISO 1042 : 1998 Laboratory glassware — One-mark volumetric flasks (*third revision*)	Identical

The Technical Committee responsible for the preparation of this standard will review the provisions of following International Standards referred in these adopted standards and will decide their acceptability for use in conjunction with this standard.

International Standard	*Title*
ISO 3082 : 2017	Iron ores — Sampling and sample preparation procedures
ISO 3696 : 1987	Water for analytical laboratory use — Specification and test methods
ISO 7764:2006	Iron ores — Preparation of predried test samples for chemical analysis

In reporting the result of a test or analysis made in accordance with this standard, if the final value; observed or calculated, is to be rounded off, it shall be done in accordance with IS 2 : 2022 'Rules for rounding off numerical values (*second revision*).'

The Scope of the standard is as follows:

SCOPE

This International Standard specifies a method for the determination of aluminium, calcium, phosphorus, magnesium, manganese, silicon and titanium in iron ores by inductively coupled plasma atomic emission spectrometry (ICP-AES).

This method is applicable to the mass-fraction ranges given in Table 1, in natural iron ores, iron ore concentrates and agglomerates, including sinter products.

Table 1 Mass-fraction ranges

Element	Range of mass fractions

	%
Al	0.07 to 3.30
Ca	0.012 to 6.80
Mg	0.008 to 1.90
Mn	0.012 to 1.70
P	0.011 to 1.60
Si	0.44 to 9.40
Ti	0.018 to 0.17

The complete document/text of ISO 11535 : 2006 'Iron ores — Determination of various elements — Inductively coupled plasma atomic emission spectrometric method' may be made available, on request to:

संजीव मैनी **/Sanjiv Maini**
वरिष्ठ निदेशक**,** वैज्ञानिक **'**एफ**'** एवं प्रमुख **/Senior Director, Scientist 'F' & Head**
धातुकर्म अभियांत्रिकी विभाग **/Metallurgical Engg. Department**
भारतीय मानक ब्यूरो **/Bureau of Indian Standards,**
मानक भवन**,** नई दिल्ली**/ Manak Bhavan, 9, B.S.Z. Marg,**
New Delhi-110002
E-mail: mtd@bis.gov.in, mtd34@bis.gov.in
Tel: + 91 11 23231085