



JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS H 1322 : 2017

(JMA/JSA)

**Magnesium and magnesium alloys —
Method for spark discharge atomic
emission spectrometric analysis**

ICS 77.120.20

Reference number : JIS H 1322 : 2017 (E)

PROTECTED BY COPYRIGHT

H 1322 : 2017

Date of Establishment: 1962-06-01

Date of Revision: 2017-03-21

Date of Public Notice in Official Gazette: 2017-03-21

Investigated by: Japanese Industrial Standards Committee

Standards Board for ISO area

Technical Committee on Metal and Inorganic Materials

JIS H 1322 : 2017, First English edition published in 2017-09

Translated and published by: Japanese Standards Association
Mita MT Building, 3-13-12, Mita, Minato-ku, Tokyo, 108-0073 JAPAN

In the event of any doubts arising as to the contents,
the original JIS is to be the final authority.

© JSA 2017

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

Printed in Japan

PROTECTED BY COPYRIGHT

NH/HN
 **Documents**
Document Sharing Hub

Contents

	Page
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 General matters	3
5 Summary	3
6 Apparatus and analytical conditions	3
6.1 Atomic emission spectrometer	3
6.2 Adjustment of apparatus	3
6.3 Checking of apparatus performance	3
6.4 Analytical condition	4
7 Sample for calibration graph, sample for correction of calibration graph and analytical portion	5
7.1 Sample for calibration graph	5
7.2 Sample for correction of calibration graph	6
7.3 Analytical portion	6
8 Preparation of sample	6
9 Operation	7
10 Calibration graph	7
10.1 Preparation of calibration graph	7
10.2 Variation factor of apparatus when correction of calibration graph is required	8
10.3 Correction of calibration graph	8
11 Calculation	9
12 Safety and hygiene	9
Annex A (normative) Spark discharge emission spectrometer	11

Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by The Japan Magnesium Association (JMA)/Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently **JIS H 1322:1976** is replaced with this Standard.

This **JIS** document is protected by the Copyright Law.

Attention is drawn to the possibility that some parts of this Standard may conflict with patent rights, applications for a patent after opening to the public or utility model rights. The relevant Minister and the Japanese Industrial Standards Committee are not responsible for identifying any of such patent rights, applications for a patent after opening to the public or utility model rights.

Magnesium and magnesium alloys — Method for spark discharge atomic emission spectrometric analysis

1 Scope

This Japanese Industrial Standard specifies the method for determination of 10 components given in Table 1 in magnesium and magnesium alloys by spark discharge atomic emission spectrometric analysis.

Table 1 Applicable components and determination range

Unit: mass fraction (%)	
Applicable component	Determination range
Aluminium	0.01 or over up to and incl. 12.0
Zinc	0.005 or over up to and incl. 7.0
Manganese	0.006 or over up to and incl. 1.0
Iron	0.003 or over up to and incl. 0.08
Silicon	0.006 or over up to and incl. 0.6
Copper	0.005 or over up to and incl. 0.5
Nickel	0.001 or over up to and incl. 0.04
Zirconium	0.05 or over up to and incl. 0.10
Calcium	0.01 or over up to and incl. 0.10
Beryllium	0.001 or over up to and incl. 0.003

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated below shall be applied.

- JIS H 1332 *Methods for determination of aluminium in magnesium and magnesium alloys*
- JIS H 1333 *Methods for determination of zinc in magnesium and magnesium alloys*
- JIS H 1334 *Methods for determination of manganese in magnesium and magnesium alloys*
- JIS H 1335 *Methods for determination of silicon in magnesium and magnesium alloys*
- JIS H 1336 *Methods for determination of copper in magnesium and magnesium alloys*
- JIS H 1337 *Method for determination of nickel in magnesium and magnesium alloys*

- JIS H 1338 *Methods for determination of iron in magnesium and magnesium alloys*
- JIS H 1339 *Methods for determination of beryllium in magnesium and magnesium alloys*
- JIS H 1340 *Method for determination of zirconium in magnesium alloys*
- JIS H 1341 *Method for determination of calcium in magnesium alloys*
- JIS K 0116 *General rules for atomic emission spectrometry*
- JIS K 0211 *Technical terms for analytical chemistry (General part)*
- JIS K 0212 *Technical terms for analytical chemistry (optical part)*
- JIS K 0215 *Technical terms for analytical chemistry (Analytical instrument part)*
- JIS Q 0032 *Calibration in analytical chemistry and use of certified reference materials*
- JIS R 6001-1 *Bonded abrasive — Determination and designation of grain size distribution — Part 1 : Macrogrits F4 to F220*
- JIS R 6001-2 *Bonded abrasive — Determination and designation of grain size distribution — Part 2 : Microgrits*
- JIS R 6010 *Coated abrasive grain sizes*
- JIS Z 8401 *Guide to the rounding of numbers*
- JIS Z 8402-6 *Accuracy (trueness and precision) of measurement methods and results — Part 6 : Use in practice of accuracy values*

3 Terms and definitions

For the purposes of this Standard, the terms and definitions given in JIS K 0211, JIS K 0212 and JIS K 0215, and the following apply.

3.1 measured value of emission intensity

in the case of emission intensity method, emission intensity of the analyte obtained by atomic emission spectrometry

In the case of strength ratio method, the ratio of emission intensity of the analyte element to emission intensity of internal standard element (generally, magnesium).

3.2 specific time integration method

method in which determination is carried out by integrating the emission intensity of spectral line for a specific time

3.3 pulse distribution analysis (time-resolved photometry)

method in which the emission intensity is measured for each single pulse and determination is carried out by using the numerical value (mean value, median value, etc.) obtained by treating statistically signal values of the whole pulse measured