



JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS K 0114 : 2012

(JAIMA/JSA)

General rules for gas chromatography

ICS 71.040.50

Reference number : JIS K 0114 : 2012 (E)

Date of Establishment: 1963-05-01

Date of Revision: 2012-02-20

Date of Public Notice in Official Gazette: 2012-02-20

Investigated by: Japanese Industrial Standards Committee
Technical Committee on Chemical Analysis

JIS K 0114:2012, First English edition published in 2014-10

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 2014

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

NH/AT

Contents

	Page
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Outline of gas chromatography	9
5 Operations before sample introduction	11
5.1 General	11
5.2 Sampling	11
5.3 Pretreatment	12
6 Apparatus	12
6.1 General	12
6.2 Flow rate controller for gas	12
6.3 Sample introducing port	13
6.4 Column oven	15
6.5 Detector	15
6.6 Detector tank	18
6.7 Temperature controller	19
6.8 Signal controller	19
6.9 Data processing device	19
6.10 Accessories	19
7 Column	21
7.1 Classification of column	21
7.2 Capillary column	22
7.3 Packed column	24
8 Installation and safety of apparatus	26
8.1 Installation of apparatus	26
8.2 Safety	27
9 Measurement	28
9.1 Preparation of sample (pretreatment by sample type)	28
9.2 Preparation of operation	29
9.3 Operation	32
10 Qualitative analysis	34
11 Quantitative analysis	34
11.1 Determination	34
11.2 Measurement of peak height	35
11.3 Measurement of peak area	35

11.4	External standard method	37
11.5	Area percentage method	38
11.6	Corrected-area percentage method	38
11.7	Internal standard method	38
11.8	Standard addition method.....	40
11.9	Expression of determination	41
12	Control of data quality (accuracy control)	41
12.1	General	41
12.2	Securement of traceability	41
12.3	Securement of reliability of analysed value	42
12.4	Measurement for control of data quality	42
12.5	Obtaining method for lower detection limit	42
12.6	Measurement of blank test	43
12.7	Periodical inspection of apparatus performance	43
12.8	Confirmation of peak shape and separation of chromatogram	43
13	Matters to be described when adopting gas chromatography as the analytical method for individual standard	44

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 Japan Analytical Instruments Manufacturers' Association (JAIMA)/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 K 0114**:2000 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.

General rules for gas chromatography

1 Scope

This Japanese Industrial Standard specifies the general rules applicable to the qualitative and quantitative analysis for organic and inorganic substances using gas chromatography.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. For standards with the year indication, only the editions of the indicated year shall be applied and the revisions (including amendments) made thereafter shall not be applied. For those without the indication of the year, the most recent edition (including amendments) shall be applied.

JIS K 0050 *General rules for chemical analysis*

JIS K 0211:2005 *Technical terms for analytical chemistry (General part)*

JIS K 0214:2006 *Technical terms for analytical chemistry (Chromatography part)*

JIS K 0215:2005 *Technical terms for analytical chemistry (Analytical instrument part)*

JIS K 8251 *Glass wool (Reagent)*

3 Terms and definitions

For the purposes of this Standard, the terms and definitions given in **JIS K 0050**, **JIS K 0211:2005**, **JIS K 0214:2006** and **JIS K 0215:2005**, and the following terms and definitions apply.

NOTE : When necessary, this Standard modifies definitions in **JIS K 0211:2005**, **JIS K 0214:2006** and **JIS K 0215:2005**, by supplementing, adding, etc. The definitions modified are marked with an asterisk (*).

3.1 gas chromatography*

the chromatography in which gas is used as a mobile phase

It separates and detects analytes by using the difference in the interaction with a stationary phase (adsorption, partition).

3.2 gas chromatograph*

the apparatus used for gas chromatography

3.3 gas chromatographic analysis

qualitative and quantitative analysis of compounds using a gas chromatograph

It can be used synonymously with gas chromatography.

3.4 chromatogram*

the record of the results obtained by gas chromatography

It is also called gas chromatogram.