



JAPANESE  
INDUSTRIAL  
STANDARD

Translated and Published by  
Japanese Standards Association

---

**JIS K 0124 : 2011**

(JAIMA/JSA)

**General rules for high performance  
liquid chromatography**

---

**ICS 71.040.50**

**Reference number : JIS K 0124 : 2011 (E)**

Date of Establishment: 1983-03-01

Date of Revision: 2011-03-22

Date of Public Notice in Official Gazette: 2011-03-22

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

---

JIS K 0124:2011, First English edition published in 2013-10

---

Translated and published by: Japanese Standards Association  
4-1-24, Akasaka, Minato-ku, Tokyo, 107-8440 JAPAN

---

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

© JSA 2013

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 Overview of high performance liquid chromatography .....	5
5 Instrument.....	9
5.1 Configuration of instruments .....	9
5.2 Pumping system for mobile phase .....	9
5.3 Sample injection part .....	10
5.4 Separation part .....	10
5.5 Detection part .....	11
5.6 Data processor.....	12
5.7 Accessories .....	12
6 Water, reagent and solvent .....	12
7 Column and column packing .....	13
7.1 Column .....	13
7.2 Column packing .....	13
7.3 Separation mode and column packing.....	14
7.4 Column performance evaluation .....	14
8 Operation .....	14
8.1 Preparation for sample .....	14
8.2 Preparation of eluent .....	26
8.3 Selection of detector by analyte .....	31
8.4 Selection of method of post column derivatization.....	32
8.5 Selection of eluent .....	35
8.6 Measuring operation .....	36
9 Qualitative analysis .....	38
10 Quantitative analysis.....	39
10.1 Determination .....	39
10.2 Measurement of peak height .....	39
10.3 Measurement of peak area.....	39
10.4 Absolute calibration curve method .....	41
10.5 Internal standard method .....	42
10.6 Standard addition method.....	43
10.7 Expression of determined value .....	43
11 Measurement of molecular weight distribution .....	43

11.1	Measuring method for average molecular weight by using calibration curve .....	44
11.2	Measurement of molecular-weight distribution by pattern .....	45
12	Preparative liquid chromatography .....	45
12.1	Preparation of fractionation .....	46
12.2	Fractionation method .....	47
12.3	Operation .....	48
13	Guarantee of data quality .....	48
13.1	Method validation .....	48
13.2	Control of data quality .....	49
13.3	Method to obtain the limit of detection .....	49
13.4	Measurement of blank .....	52
13.5	Periodic check of device performance .....	52
14	Installation of apparatus .....	52
15	Safety .....	53
16	Items to be mentioned in individual standard .....	54

## **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 0124:2002** 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 high performance liquid chromatography

## 1 Scope

This Japanese Industrial Standard specifies general rules applicable to the cases when using high performance liquid chromatography for the qualitative/quantitative analysis of analyte and when performing aliquot with the purpose of purification for analysis.

## 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 K 0050 *General rules for chemical analysis*

JIS K 0127 *General rules for ion chromatographic analysis*

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

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

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

## 3 Terms and definitions

For the purposes of this Standard, the terms and definitions given in **JIS K 0050**, **JIS K 0127**, **JIS K 0211**, **JIS K 0214** and **JIS K 0215**, as well as the following apply.

### 3.1 high performance liquid chromatography

method to separate and detect analyte sophisticatedly by using the difference of interaction (adsorption, partition, ion exchange, size exclusion, etc.) between stationary phase and liquid mobile phase which is passed through a column using a pump, etc.

### 3.2 high performance liquid chromatograph

apparatus by which high performance liquid chromatography is carried out

### 3.3 analyte

target component to be analyzed existing in sample or sample solution

### 3.4 sample solvent

a solvent used for dissolving sample so as to inject the sample into column

### 3.5 test sample solution

sample solution itself or that given any pretreatment, for measurement

### 3.6 stationary phase

the phase, one of the elements associated with separation in the field of liquid chromatography, which is in equilibrium with mobile phase and interacts with analytes