



JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS K 0102-5 : 2024

**Testing methods for industrial water and
industrial wastewater — Part 5: Microor-
ganisms and biological effect**

ICS 07.100.20;13.060.25;13.060.30;13.060.50

Reference number: JIS K 0102-5:2024 (E)

Date of Establishment: 2024-10-21

Date of Public Notice in Official Gazette: 2024-10-21

Investigated by: Japanese Industrial Standards Committee
Standards Board for ISO area
Technical Committee on Chemical Products
and Analytical Methods

JIS K 0102-5 : 2024, First English edition published in 2025-07

Translated and published by: Japanese Standards Association
Mita Avanti, 3-11-28, 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 2025

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

HN

Contents

	Page
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 General requirements	2
4.1 Chemical analysis	2
4.2 Water used for tests	2
4.3 Reagents used for tests	2
4.4 Glassware	3
4.5 Sample	3
5 Bacterial tests	3
5.1 General	3
5.2 General requirements for bacterial tests	3
5.3 General bacteria	7
5.4 Coliform group count	10
5.5 Fecal coliform group bacteria	22
5.6 Escherichia coli count	24
5.7 Heterotrophic bacteria	30
5.8 Legionella bacteria	33
5.9 Other bacterial species	43
6 Biological effect tests	43
6.1 General	43
6.2 General requirements for biological effect tests	44
6.3 Acute effect test by fish	44
6.4 Acute immobilization test by crustaceans	51
6.5 Growth inhibition test by freshwater algae	55
Annex A (informative) Normative references	61
Annex B (informative) Comparison table between JIS and corresponding International Standards	63

Foreword

This Japanese Industrial Standard has been established by the Minister of Economy, Trade and Industry, through deliberations at the Japanese Industrial Standards Committee in accordance with the Industrial Standardization Act.

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

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

JIS K 0102 series consists of the following 5 parts under the general title *Testing methods for industrial water and industrial wastewater*— :

Part 1 : Test methods for general physics and chemistries

Part 2: Inorganic anions, ammonium ion, organic nitrogen, total nitrogen and total phosphorus

Part 3: Metals

Part 4: Organic substances

Part 5: Microorganisms and biological effect

Testing methods for industrial water and industrial wastewater — Part 5: Microorganisms and biological effect

1 Scope

This Japanese Industrial Standard specifies the test methods for microorganisms and biological effect of industrial water and industrial wastewater discharged from factories including places of business (hereafter referred to as industrial wastewater). Unless otherwise stated in the individual test clauses, the tests shall apply to both industrial water and industrial wastewater.

For test methods in this Standard for which a corresponding International Standard exists, the number of the International Standard and the symbol of degree of its correspondence with relevant **JIS** test requirements are shown in applicable clauses.

Where modifications have been made in the technical contents of the corresponding International Standard, the modifications and their explanations are given in Annex B.

2 Normative references

Part or all of the provisions of the standards listed in Annex A, through reference in this text, constitute provisions of this Standard. The most recent editions of the standards (including amendments) indicated in Annex A shall be applied.

3 Terms and definitions

For the purpose of this Standard, the following terms and definitions, and those given in **JIS K 0211** apply.

3.1

general bacteria

all bacteria that, when incubated on standard agar medium at $36\text{ °C} \pm 1\text{ °C}$ for $24\text{ h} \pm 2\text{ h}$, form colonies on the medium

3.2

coliform group bacteria

gram-negative sporeless short bacilli, that is, aerobic or facultative anaerobic bacteria which can decompose lactose to produce acids and gases

3.3

fecal coliform group bacteria

coliform group bacteria that, when incubated on EC liquid medium or M-FC agar medium at $44.5\text{ °C} \pm 0.2\text{ °C}$ for $24\text{ h} \pm 2\text{ h}$, produce gas in EC liquid medium or form blue colonies on M-FC agar medium