



JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS C 2390-1 : 2019

(JPI/JSA)

Readily biodegradable electrical insulating oils — Part 1: Synthetic ester

ICS 29.040.01 ; 29.040.99

Reference number : JIS C 2390-1 : 2019 (E)

PROTECTED BY COPYRIGHT

Date of Establishment: 2019-09-20

Date of Public Notice in Official Gazette: 2019-09-20

Investigated by: Japanese Industrial Standards Committee
Standards Board for IEC area

JIS C 2390-1 : 2019, First English edition published in 2020-10

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 2020

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

HT/HN

Contents

	Page
Introduction	1
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Properties and test methods	2
4.1 General requirements for quality	2
4.2 Physical properties	3
4.3 Electrical properties	4
4.4 Chemical properties	4
4.5 Oxidation properties	4
4.6 Safety and environment properties	4
5 Class identification, general delivery requirements and sampling method	4
5.1 Class identification	4
5.2 General delivery requirements	4
5.3 Sampling method	5
Annex JA (informative) Identification test	6
Annex JB (informative) Comparison table between JIS and corresponding International Standard	8

Foreword

This Japanese Industrial Standard has been established by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee according to the proposal for establishment of Japanese Industrial Standard submitted by The Japan Petroleum Institute (JPI)/Japanese Standards Association (JSA) with a draft being attached, based on the provision of Article 12, paragraph (1) of 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 C 2390 series consists of the following 3 parts under the general title *Readily biodegradable electrical insulating oils*:

Part 1: Synthetic ester

Part 2: Natural esters (Vegetable oils)

Part 3: Modified esters derived from vegetable oils

NOTE Based on Article 9 of the Supplementary Provisions to the Unfair Competition Prevention Act etc., any submission of proposal, or employment of procedures such as deliberation by the Japanese Industrial Standards Committee under the previous Industrial Standardization Act shall be deemed to have been conducted pursuant to the provision of Article 12, paragraph (1) of the revised Industrial Standardization Act.

Readily biodegradable electrical insulating oils — Part 1 : Synthetic ester

Introduction

This Japanese Industrial Standard has been prepared based on **IEC 61099** : 2010, Edition 2, with some modifications of the technical contents in consideration of the distribution situation of electrical insulating oils in Japan.

The vertical lines on both sides and dotted underlines indicate changes from the corresponding International Standard. A list of modifications with the explanations is given in Annex JB. Annex JA is unique to **JIS** and not given in the corresponding International Standard.

1 Scope

This Standard specifies requirements for unused synthetic esters that are used as insulating media and/or heat exchange media for oil-impregnated capacitor, oil-filled cables, oil-immersed transformer, oil circuit breakers, and other oil-filled electrical equipment.

NOTE The International Standard corresponding to this Standard and the symbol of degree of correspondence are as follows.

IEC 61099 : 2010 *Insulating liquids — Specifications for unused synthetic organic esters for electrical purposes* (MOD)

In addition, symbols which denote the degree of correspondence in the contents between the relevant International Standard and **JIS** are IDT (identical), MOD (modified), and NEQ (not equivalent) according to **ISO/IEC Guide 21-1**.

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 editions (including amendments) shall be applied.

JIS C 2101 *Testing methods of electrical insulating oils*

JIS K 2265-4 *Determination of flash points — Part 4 : Cleveland open cup method*

JIS Z 1601 *Tight head steel drums*

JIS Z 1602 *18 liter metal cans*

JIS Z 1620 *Steel pails*

OECD 301 : 1992 *OECD GUIDELINE FOR TESTING OF CHEMICALS — Ready*