

JIS

JAPANESE
INDUSTRIAL
STANDARD

Translated and Published by
Japanese Standards Association

JIS A 9501 : 2014

(JTIA/JSA)

**Standard practice for thermal
insulation works**

ICS 27.220;91.120.10

Reference number : **JIS A 9501 : 2014 (E)**

A 9501 : 2014

Date of Establishment: 1952-03-04

Date of Revision: 2014-07-29

Date of Public Notice in Official Gazette: 2014-01-20

Investigated by: Japanese Industrial Standards Committee

Standards Board

Technical Committee on Architecture

JIS A 9501:2014, First English edition published in 2015-03

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 2015

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

KK/AT

PROTECTED BY COPYRIGHT

Contents

	Page
Introduction.....	1
1 Scope.....	1
2 Normative references	1
3 Terms and definitions	2
4 Materials used in thermal insulation works	5
4.1 Selection of types of materials	5
4.2 Main thermal insulation materials used in thermal insulation works.....	6
4.3 Main subsidiary materials to be used	6
5 Calculation of thickness of heat insulation material or cold insulation material.....	9
5.1 Design condition of thickness of heat insulation material or cold insulation material	9
5.2 Formulae for heat transfer calculation	11
5.3 Calculation of economical heat insulation thickness	19
6 Method of execution for heat insulation works	21
6.1 Heat insulation material to be used	21
6.2 Main subsidiary materials to be used	21
6.3 Guideline on execution of heat insulation works	22
7 Method of execution for cold insulation works	24
7.1 Cold insulation material to be used	24
7.2 Main subsidiary materials to be used	25
7.3 Guideline on execution of cold insulation works	26
8 Method of execution for heat insulation/cold insulation/moisture condensation proof works of building engineering	28
8.1 Heat insulation, cold insulation/moisture condensation proof material to be used	28
8.2 Main subsidiary materials to be used	29
8.3 Guideline on execution of heat insulation work, cold insulation work and moisture condensation proof work	30
9 Inspection	35
9.1 Classification of inspection	35
9.2 Voluntary confirmation items	35
9.3 Performance confirmatory inspection	36
9.4 Judgement of acceptance	36
9.5 Measuring instrument	37

Annex A (informative)	Calculation of heat insulation thickness when temperature change of fluid transported in piping is set as design condition	69
Annex B (informative)	Calculation of temperature change with time of static fluid and heat insulation thickness	71
Annex C (informative)	Calculation of heat insulation thickness for prevention of freezing of water in pipe	74
Annex D (informative)	Basic formulae of heat transfer calculation	77
Annex E (informative)	Calculation method of surface temperature and surface heat transfer coefficient	81
Annex F (informative)	Method for obtaining mean thermal conductivity of heat insulation materials or cold insulation materials	84
Annex G (informative)	Safety factor of surface temperature in moisture condensation proof	86
Annex H (informative)	Method for determining economical heat insulation thickness	89
Annex I (informative)	Service temperature of heat insulation material	92
Annex J (informative)	Guideline on execution of metal part that penetrates cold insulation material	94
Annex K (informative)	Handling of stock solution for rigid urethane foam injection foaming	96
Annex L (informative)	Points to note for corrosion under heat insulation materials (CUI)	97
Annex M (informative)	Examples of calculation	101
Annex N (informative)	Comparison table between previous and current editions of this Standard on technically significant revisions	170

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 Thermal Insulation Association (JTIA)/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 A 9501**:2006 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.

Standard practice for thermal insulation works

Introduction

This Japanese Industrial Standard was established in 1952 and has gone through 15 revisions up to the present. The previous revision was carried out in 2006; however, it is revised this time to respond to changes in social needs and also in execution technology.

No corresponding International Standard has been established at this point. The comparison table between previous and current editions of this Standard on technically significant revisions is given in Annex N.

1 Scope

This Standard specifies the execution methods of thermal insulation works on various apparatuses in chemical industry, fuel industry and heat utilizing power, and facilities of air conditioning, sanitary for supplying and draining, etc. However, the thermal insulation works related to refrigerators, ships and railway rolling stocks are excluded. The intended temperatures of the thermal insulation works specified in this Standard shall be within $-180\text{ }^{\circ}\text{C}$ to $1\,000\text{ }^{\circ}\text{C}$.

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 A 0202 *Thermal insulation—vocabulary*

JIS A 1322 *Testing method for fire combustibility of thin materials for buildings*

JIS A 1412-2 *Test method for thermal resistance and related properties of thermal insulations—Part 2: Heat flow meter apparatus*

JIS A 5538 *Adhesives for wall and ceiling boards*

JIS A 5547 *Adhesives for preformed cellular plastics thermal insulation board*

JIS A 5549 *Adhesives for fixture*

JIS A 5557 *Staples*

JIS A 5733 *Sealants for sealing and glazing in buildings*

JIS A 9504 *Man made mineral fibre thermal insulation materials*

JIS A 9510 *Inorganic porous thermal insulation materials*

JIS A 9511 *Preformed cellular plastics thermal insulation materials*

JIS B 0147 *Blind rivets—Terminology and definitions*

JIS B 1122 *Cross recessed head tapping screws*

JIS B 1123 *Hexagon head tapping screws*