

AS 4426—1997

Reconfirmed 2018

Australian Standard®

---

**Thermal insulation of pipework,  
ductwork and equipment—  
Selection, installation and finish**

---

This Australian Standard was prepared by Committee ME/77, Thermal Insulation Mechanical Services. It was approved on behalf of the Council of Standards Australia on 16 August 1996 and published on 5 January 1997.

---

The following interests are represented on Committee ME/77:

Association of Consulting Engineers Australia  
Australian Chamber of Commerce and Industry  
Australian Institute of Refrigeration, Air Conditioning and Heating  
Institution of Engineers, Australia  
Master Plumbers and Mechanical Services Association of Australia  
Metal Trades Industry Association of Australia  
Thermal Insulation Contractors Association of Australia  
WORKS Australia, Department of Administrative Services

---

**Review of Australian Standards** To keep abreast of progress in industry, Australian Standards are subject to periodic review and are kept up to date by the issue of amendments or new editions as necessary. It is important therefore that Standards users ensure that they are in possession of the latest edition, and any amendments thereto.

Full details of all Australian Standards and related publications will be found in the Standards Australia Catalogue of Publications. This information is supplemented each month by the magazine 'The Australian Standard', which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn Standards.

Suggestions for improvements to Australian Standards, addressed to the head office of Standards Australia, are welcomed. Notification of any inaccuracy or ambiguity found in an Australian Standard should be made without delay in order that the matter may be investigated and appropriate action taken.

---

*This Standard was issued in draft form for comment as DR 95338.*

STANDARDS AUSTRALIA

---

**RECONFIRMATION**

**OF**

**AS 4426–1997**

**Thermal insulation of pipework, ductwork and equipment–Selection,  
installation and finish**

---

**RECONFIRMATION NOTICE**

Major stakeholders of this publication have reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

Certain documents referenced in the publication may have been amended since the original date of publication. Users are advised to ensure that they are using the latest versions of such documents as appropriate, unless advised otherwise in this Reconfirmation Notice.

Approved for reconfirmation in accordance with Standards Australia procedures for reconfirmation on 29 August 2018.

NOTES

Currently in preview, click buy full vers.

Australian Standard<sup>®</sup>

---

**Thermal insulation of pipework,  
ductwork and equipment—  
Selection, installation and finish**

---

## PREFACE

This Standard was prepared by the Standards Australia Committee ME/77, Thermal Insulation Mechanical Services.

The objective of this Standard is to provide good practice procedures relating to the installation of insulation to mechanical services for use by designers, specifiers, regulators and inspectors of these systems. The Standard outlines requirements and guidelines for the process of selecting and installing thermal insulating systems for mechanical plant and services operating in the range of  $-75^{\circ}\text{C}$  to  $+800^{\circ}\text{C}$ .

The term 'informative' has been used in this Standard to define the application of the appendix to which it applies. An 'informative' appendix is only for information and guidance.

During the development of this Standard cognizance was taken of the technical requirements and contents of BS 5970, *Code of practice for thermal insulation of pipework and equipment (in the temperature range  $-100^{\circ}\text{C}$  to  $+870^{\circ}\text{C}$ )*.

## © Copyright — STANDARDS AUSTRALIA

Users of Standards are reminded that copyright subsists in all Standards Australia publications and software. Except where the Copyright Act allows and except where provided for below no publications or software produced by Standards Australia may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing from Standards Australia. Permission may be conditional on an appropriate royalty payment. Requests for permission and information on commercial software royalties should be directed to the head office of Standards Australia.

Standards Australia will permit up to 10 percent of the technical content pages of a Standard to be copied for use exclusively in-house by purchasers of the Standard without payment of a royalty or advice to Standards Australia.

Standards Australia will also permit the inclusion of its copyright material in computer software programs for no royalty payment provided such programs are used exclusively in-house by the creators of the programs.

Care should be taken to ensure that material used is from the current edition of the Standard and that it is updated whenever the Standard is amended or revised. The number and date of the Standard should therefore be clearly identified.

The use of material in print form or in computer software programs to be used commercially, with or without payment, or in commercial contracts is subject to the payment of a royalty. This policy may be varied by Standards Australia at any time.

## CONTENTS

	<i>Page</i>
<b>SECTION 1 SCOPE AND GENERAL</b>	
1.1 GENERAL .....	5
1.2 REFERENCED DOCUMENTS .....	5
1.3 DEFINITIONS .....	5
1.4 EXCHANGE OF DESIGN DATA .....	6
1.5 PRACTICAL DESIGN CONSIDERATIONS .....	8
1.6 TEMPERATURE CLASSIFICATIONS .....	14
1.7 CONTRACTS .....	1
<b>SECTION 2 SELECTION OF INSULATING MATERIALS AND SYSTEMS</b>	
2.1 CHARACTERISTICS OF INSULATING MATERIALS .....	15
2.2 SELECTION OF THERMAL INSULATING SYSTEMS .....	26
<b>SECTION 3 SELECTION OF SECURING MATERIALS</b>	
3.1 GENERAL .....	29
3.2 ADHESIVES .....	29
3.3 MECHANISM OF CURING .....	30
3.4 MECHANICAL SECUREMENTS .....	31
3.5 COMBINATION .....	32
<b>SECTION 4 VAPOUR BARRIERS</b>	
4.1 GENERAL .....	33
4.2 CONDENSATION AND FREEZING .....	33
4.3 REQUIREMENTS FOR A VAPOUR BARRIER .....	33
4.4 VAPOUR BARRIERS FOR USE OVER INSULATION ON SURFACES ABOVE DEW POINT .....	33
4.5 FACTORS WHICH MUST BE CONSIDERED .....	33
4.6 MATERIALS .....	34
<b>SECTION 5 SELECTION AND TREATMENT OF FINISHING MATERIALS</b>	
5.1 GENERAL .....	35
5.2 FINISHING MATERIALS .....	35
5.3 REASONS FOR USE .....	35
5.4 TYPICAL CHARACTERISTICS OF AND USES FOR FINISHING MATERIALS .....	36
5.5 FINISHES FOR TROPICAL CONDITIONS .....	37
5.6 FINISHES FOR REFRIGERATION WORK .....	38
5.7 FINISHES TO IMPROVE FIRE PROTECTIVE PROPERTIES .....	38
5.8 FINISHES FOR USE OVER PIPES IN DUCTS AND SUBWAYS, OR BENEATH BUILDINGS .....	38
5.9 ULTIMATE TREATMENT OF FINISH .....	38
<b>SECTION 6 METHODS OF APPLICATION</b>	
6.1 GENERAL .....	40
6.2 SURFACE PREPARATION AND ATTACHMENTS .....	40
6.3 INSULATION SUPPORTS .....	43
6.4 COLD INSULATION: APPLICATION FOR SYSTEMS OPERATING IN THE TEMPERATURE RANGE $-75^{\circ}\text{C}$ TO $+10^{\circ}\text{C}$ .....	48
6.5 HOT INSULATION: APPLICATION FOR SYSTEMS OPERATING IN THE TEMPERATURE RANGE $+10^{\circ}\text{C}$ TO $800^{\circ}\text{C}$ .....	56

	<i>Page</i>
SECTION 7 FINISHES—METHODS OF APPLICATION	
7.1 INDOOR FINISHES . . . . .	85
7.2 TEXTILE FABRICS . . . . .	86
7.3 PLASTIC SHEET AND ELASTOMER SHEET . . . . .	86
7.4 MASTIC AND COATING FINISHES . . . . .	87
7.5 METAL SHEET . . . . .	88
7.6 WEATHER RESISTANT FINISHES . . . . .	91
7.7 ULTIMATE TREATMENT OF FINISH PAINTING . . . . .	98
APPENDICES	
A INSPECTION, TESTING AND MAINTENANCE . . . . .	99
B PROTECTION AGAINST CORROSION . . . . .	100
C PROTECTION AGAINST CONDENSATION . . . . .	105
D STANDARDS FOR INSULATING MATERIALS . . . . .	112

## STANDARDS AUSTRALIA

## Australian Standard

**Thermal insulation of pipework, ductwork and equipment—  
Selection, installation and finish**

## SECTION 1 SCOPE AND GENERAL

**1.1 GENERAL**

**1.1.1 Scope** This Standard deals with the selection, installation and finish of thermal insulation for pipework, ductwork, tanks, vessels and equipment in the temperature range  $-75^{\circ}\text{C}$  to  $+800^{\circ}\text{C}$  but excludes manufactured pre-insulated equipment, structural insulation of buildings and cold stores, fireproofing structures, refractory linings of plant, airborne installations and all external underground mains.

## NOTES:

- 1 The Standard may be found to be generally applicable to the insulation of road and rail transport vehicles and of some assistance in marine insulation.
- 2 Appendices to the Standard provide guidance on inspection, testing and maintenance (Appendix A), protection against condensation (Appendix B), protection against corrosion (Appendix C) and relevant Australian Standards on insulation materials (Appendix D).

**1.1.2 New designs and innovations** Any alternative materials, designs, methods of assembly, and procedures that do not comply with specific requirements of this Standard, or are not mentioned in it, but give equivalent results to those specified, are not necessarily prohibited.

**1.2 REFERENCED DOCUMENTS** The following documents are referred to in this Standard:

## AS

- |         |   |
|---------|---|
| 1345    | Identification of the contents of piping, conduits and ducts  |
| 1530    | Methods for fire tests on building materials, components and structures (series)                      |
| 2124    | General conditions of contract  |
| 2352    | Glossary of terms for thermal insulation of buildings   |
| 2545    | Subcontract conditions  |
| 4254    | Ductwork for air-handling systems in buildings  |
| 4300    | General conditions of contract for design and construct   |
| 4305    | General conditions of subcontract for design and construct  |
| AS 1518 |   |
| C236    | Test Method for Steady-State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box |
| C739    | Specification for Cellulosic Fibre (Wood-Base) Loose-Fill Thermal Insulation                          |

**1.3 DEFINITIONS** For the purposes of this Standard, the definitions given in AS 2352 and those below apply.