

Australian Standard[®]

**Rigid cellular plastics sheets for
thermal insulation**

**Part 1: Rigid cellular polyurethane
(RC/PUR)**

This Australian Standard was prepared by Committee PL/16, Rigid Cellular Plastics for Thermal Insulation. It was approved on behalf of the Council of Standards Australia on 13 December 1991 and published on 16 March 1992.

The following interests are represented on Committee PL/16:

Board of Fire Commissioners, N.S.W.

Commercial Refrigeration Manufacturers Association of Australia

CSIRO, Division of Building, Construction and Engineering

Master Builders Construction and Housing Association

Metropolitan Fire Brigades Board, Melbourne

The Plastics Institute of Australia

Railways of Australia Committee

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STANDARDS AUSTRALIA

RECONFIRMATION

OF

AS 1366.1–1992

**Rigid cellular plastics sheets for thermal insulation
Part 1: Rigid cellular polyurethane (RC/PUR)**

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NOTES

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PREFACE

This Standard was prepared by the Standards Australia Committee for Rigid Cellular Plastics for Thermal Insulation, under the direction of the Plastics Standards Board, to supersede AS 1366.1—1981.

AS 1366 consists of four parts, the others being:

Part 2: *Rigid cellular polyisocyanurate (RC/PIR)*

Part 3: *Rigid cellular polystyrene—Moulded (RC/PS-M)*

Part 4: *Rigid cellular polystyrene—Extruded (RC/PS-E)*

The products covered by this Standard are mainly intermediate products used as insulants, either by their manufacturer or by another manufacturer, in the production of thermal insulation products (e.g. building panels, cool store panels, insulation for bulk containers).

Density has been used over a number of years as a means of classifying cellular plastics. Because of advances in technology, similar physical characteristics may be achieved by materials of different apparent density; for this reason the density of the material is not included in the list of specified physical properties.

The subsequent processing of the sheets is the determining factor in the fire hazard associated with the use of these materials (i.e. the potential for harm to life or property resulting from the occurrence of a fire). For example, when used in buildings, the cellular plastics may need to be faced with lining materials in order to achieve adequate fire performance. Thus it is not relevant to include a fire performance test for the materials specified in this Standard. The users of these materials should apply suitable fire performance tests to products in their finished form. Purchasers of products fabricated from these materials should specify such tests in their purchasing agreements. For building structures and components, suitable tests are described in AS 1530, *Methods for fire tests on building materials, components and structures*, Part 3: *Simultaneous determination of ignitability, flame propagation, heat release and smoke release* and Part 4: *Fire-resistance test of elements of building construction*.

A combustion characteristics test has been included; however, it must be emphasized that a combustion characteristics test gives no indication of the fire hazard associated with the use of the sheet, but is used to compare relative combustion properties of the material. The test has been included to ensure a specified minimum level of fire retardancy in the sheet.

Reference should be made to AS 2627, *Thermal insulation of dwellings—Design guide*, for installation of thermal insulation in domestic dwellings, and for guidance on correct placing of vapour barriers for protection in situations where temperature differentials may occur. For industrial and commercial applications, expert advice should be sought.

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STANDARDS AUSTRALIA

Australian Standard

Rigid cellular plastics sheets for thermal insulation**Part 1: Rigid cellular polyurethane (RC/PUR)**

1 SCOPE This Standard specifies requirements for rigid cellular polyurethane in the form of sheets, board, blocks and cut shapes for thermal insulation purposes.

These requirements are intended for use in quality control and material specification, and are not necessarily applicable for end use design requirements.

NOTE: Alternative methods for determining compliance with this Standard are given in Appendix A.

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

AS

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|--------|---|
| 1199 | Sampling procedures and tables for inspection by attributes |
| 1399 | Guide to AS 1199—Sampling procedures and tables for inspection by attributes |
| 2122 | Combustion propagation characteristics of plastics |
| 2122.1 | Part 1: Determination of flame propagation following surface ignition of vertically oriented specimens of cellular plastics |
| 2464 | Methods of testing thermal insulation |
| 2464.5 | Method 5: Steady-state thermal transmission properties by means of the heat flow meter |
| 2464.6 | Method 6: Steady-state thermal transmission properties by means of the guarded hotplate |
| 2498 | Methods of testing rigid cellular plastics |
| 2498.1 | Method 1: Sampling and conditioning |
| 2498.3 | Method 3: Determination of compressive stress |
| 2498.5 | Method 5: Determination of water vapour transmission rate |
| 2498.6 | Method 6: Determination of dimensional stability |
| 2498.7 | Method 7: Determination of volume percentage of open and closed cells |
| 2498.8 | Method 8: Determination of water absorption |
| 2900 | Quantities, units, and symbols |
| 2900.4 | Part 4: Quantities and units of heat |
| 3900 | Quality systems—Guide to selection and use |
| 3904 | Quality management and quality system elements |

SAA

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| HB18 | Guidelines for third-party certification and accreditation |
| HB18.44 | Guide 44: General rules for ISO or IEC international third-party certification schemes for products |

ISO

- | | |
|------|---|
| 7850 | Cellular plastics, rigid—Determination of compressive creep |
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3 DEFINITIONS For the purposes of this Standard, the definitions below apply.

3.1 Rigid cellular plastics sheet—a rectangular flat slab of cellular plastics material of definite uniform thickness.

3.2 Rigid cellular polyurethane (RC/PUR)—a cellular material produced by the reaction of a diisocyanate with a polyhydroxyl compound expanded with a blowing agent.

3.3 Thermal resistance*—a measure of the thermal properties of building materials, measured in square metre kelvin per watt ($\text{m}^2\text{K}/\text{W}$).

4 CLASSIFICATION Rigid cellular polyurethane (RC/PUR) shall be classified on the basis of its compressive stress as follows:

Class GP—General purpose

Class LB—Load bearing

NOTE: Density is not used in this Standard as a means of classifying rigid cellular polyurethane, because advances in technology have enabled similar physical characteristics to be achieved by materials of different apparent density.

* In AS 2900.4, 'thermal resistance' is called 'thermal insulance' with the symbol M.