

Australian Standard[®]

**Rigid cellular plastics sheets for
thermal insulation**

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

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 1366.3–1992

**Rigid cellular plastics sheets for thermal insulation
Part 3: Rigid cellular polystyrene–Moulded (RC/PS–M)**

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PREFACE

This Standard was prepared by the Standards Australia Committee on Rigid Cellular Plastics for Thermal Insulation, under the direction of the Plastics Standards Board, to supersede AS 1366.3—1982.

AS 1366 has four parts, the other parts being:

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

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

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

The products dealt with 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 density; for this reason the density of the material is not included in the list of specified physical properties. Nominal densities of rigid cellular polystyrene are included in Appendix B for guidance purposes only.

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

1 SCOPE This Standard specifies requirements for rigid cellular polystyrene 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.

NOTES:

- 1 Alternative methods for determining compliance with this Standard are given in Appendix A.
- 2 Guidance to purchasers on recommended applications and nominal densities for each class of rigid cellular polystyrene is given in Appendix B.

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

AS

- 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
- 2498.4 Method 4: Determination of cross-breaking strength
- 2498.5 Method 5: Determination of water vapour transmission rate
- 2498.6 Method 6: Determination of dimensional stability
- 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

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

ISO

- 7850 Cellular plastics, rigid—Determination of compressive creep

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 polystyrene—moulded (RC/PS—M)—sheet expanded from expandable polystyrene beads, which is moulded to shape or cut from continuously or discontinuously produced blocks. In Australia RC/PS—M is commonly known as expanded polystyrene (EPS).

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

4 CLASSIFICATION Rigid cellular polystyrene—moulded (RC/PS—M) shall be classified on the basis of its performance in relation to the physical characteristics as given in Table 2.

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