AS/NZS 2535.1:1999
ISO 9806-1:1994

Australian/New Zealand Standard™

Test methods for solar collectors

Part 1: Thermal performance of glazed liquid heating collectors including pressure drop

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee CS/28, Solar Water Heaters. It was approved on behalf of the Council of Standards Australia on 12 February 1999 and on behalf of the Council of Standards New Zealand on 18 May 1999. It was published on 5 July 1999.

The following interests are represented on Committee CS/28:

Australian and New Zealand Solar Energy Society
Department of Energy N.S.W.
Energy Efficiency and Conservation Authority of New Zealand
Energy Efficiency Victoria
Energy Management Association New Zealand
Energy Research Centre
Metal Trades Industry Association of Australia
Plastics and Chemicals Industries Association Incorporated
Solar Energy Industries Association of Australia
University of New South Wales

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Suggestions for improvements to Joint Standards, addressed to the head office of either Standards Australia or Standards New Zealand, are welcomed. Notification of any inaccuracy or ambiguity found in a Joint Australian/New Zealand 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 98545.

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Part 1: Thermal performance of glazed liquid heating collectors including pressure drop

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PREFACE

This Standard was prepared by the Joint Standards Australia/New Zealand Committee CS/28, Solar Water Heaters, to supersede (in part) AS 2535—1986, *Solar collectors with liquid as the heat-transfer fluid—Method of testing thermal performance*.

This Standard is technically equivalent to and reproduced from ISO 9806.1—1994, *Test methods for solar collectors*, Part 1: *Thermal performance of glazed liquid heating collectors including pressure drop*.

The objective of this Standard is to provide uniform test methods for the thermal performance of glazed liquid heating collectors.

This Standard is the first in a series that applies to solar collectors.

Other parts under consideration are as follows:

Part 2: Qualification test procedures
Part 3: Thermal performance of unglazed liquid collectors (sensible heat transfer only) including pressure drop

This Standard is not intended to be a mandatory replacement for any performance rating test methods already in use in Australia or in New Zealand.

Statements expressed in mandatory terms in notes to text, tables and figures are deemed to be requirements of this Standard.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the annex to which they apply. A ‘normative’ annex is an integral part of a Standard, whereas an ‘informative’ annex is only for information and guidance.

As this Standard is reproduced from an international Standard, the following applies:

(a) Its number appears on the cover and title page while the International Standard number appears only on the cover.

(b) In the source text, ‘this International Standard’ should read ‘this Australia/New Zealand Standard’.

(c) A full point substitutes for a comma when referring to a decimal marker.

References to international Standards should be replaced by equivalent Australian or New Zealand Standards as follows:

Reference to International Standard or other publication		*Australian or New Zealand Standard*	
ISO		—	
9060	Solar energy—Specification and classification of instruments for measuring hemispherical solar and direct solar radiation		
9459	Solar heating—Domestic water heating systems		
9459-1	Part 1: Performance rating procedure using indoor test methods		
9806	Test methods for solar collectors—	AS	
9806-2	Part 2: Qualification test procedures	2535	Solar collectors with liquid as the heat-transfer fluid—Method for testing thermal performance
		NZS	
		4613	Domestic solar water heaters

ISO	
9806	Test methods for solar collectors—
9806-3	Part 3: Thermal performance of unglazed liquid heating collectors (sensible heat transfer only) including pressure drop
9845	Solar energy—Reference solar spectral irradiance at the ground at different receiving conditions
9845-1	Part 1: Direct normal and hemispherical solar irradiance for air mass 1,5
9846	Solar energy—Calibration of a pyranometer using a reference pyrheliometer
9847	Solar energy—Calibration of field pyranometers by comparison to a reference pyranometer
ISO/TR	
9901	Solar energy—Field pyranometers—Recommended practice for use
WMO	Guide to Meteorological instruments and Methods of Observation, 5th edn., WMO-8, Secretariat to the World Meteorological Organization, Geneva, 1983, Chapter 9

AS	
2535	Solar collectors with liquid as the heat-transfer fluid—Method for testing thermal performance
NZS	
4613	Domestic solar water heaters

The following Appendices have been added to facilitate the application of ISO 9806.1 as a Test method for solar collectors in Australia and New Zealand:

(i) Appendix AA—Additional information for Australian and New Zealand use.

(ii) Appendix BB—Derivation of the collector efficiency characteristic.

(iii) Appendix CC—Derivation of correction factor.

(iv) Appendix DD—Notation.

The inclusion of the above Appendices does not alter in anyway the technical content of ISO 9801.1.