

AS 2813—1985

Australian Standard[®]

**SOLAR WATER HEATERS—
METHOD OF TEST FOR
THERMAL PERFORMANCE—
SIMULATOR METHOD**

This Australian standard was prepared by Committee CS/28, Solar Water Heaters. It was approved on behalf of the Council of the Standards Association of Australia on 18 June 1985 and published on 9 August 1985.

The following interests are represented on Committee CS/28:

Australian Electrical and Electronic Manufacturers Association Ltd.
Australian Federation of Consumer Organizations Inc.
Australian Gas Association
Building Management Authority, W.A.
CSIRO, Division of Energy Technology
Department of Consumer Affairs, N.S.W.
Department of Employment and Labour Relations, Qld
Department of Housing and Construction
Department of Industrial Relations, N.S.W.
Department of Mines and Energy, N.T.
Department of Resources and Energy
Electricity Supply Association of Australia
Energy Authority of New South Wales
Engineering and Water Supply Department, S.A.
Gas and Fuel Corporation of Victoria
International Solar Energy Society
Master Plumbers and Mechanical Services Association of South Australia Inc.
Master Plumbers and Mechanical Services Association of Victoria
Melbourne and Metropolitan Board of Works
Metal Trades Industry Association of Australia
Plastics Institute of Australia Incorporated
Solar Energy Industries Association of Australia
Solar Energy Research Institute of Western Australia
University of Melbourne
University of New South Wales
Victorian Solar Energy Council

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which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn Standards.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.

AS 2813—1985

Australian Standard[®]

**SOLAR WATER HEATERS—
METHOD OF TEST FOR
THERMAL PERFORMANCE—
SIMULATOR METHOD**

First published 1985

PUBLISHED BY STANDARDS AUSTRALIA
(STANDARDS ASSOCIATION OF AUSTRALIA)
1 THE CRESCENT, HOMEBUSH, NSW 2140

ISBN 0 7262 3858 9

PREFACE

This standard was prepared by the Association's Committee on Solar Water Heaters, in response to a request from the Australian and New Zealand section of the International Solar Energy Society. It is one of a series of standards relating to solar hot water systems. It was felt that as it is the performance of a complete solar hot water system that is of importance to users in terms of the availability of hot water and the economies of operation, there was a need for a test for complete systems.

The committee recognized the need for repeatability of results, and in view of the lack of availability of suitable solar simulators at the time of commencing this work, the committee's efforts were directed initially towards an outdoor real weather test. However, the initial results of a program of evaluation of outdoor testing of complete systems indicated that the repeatability and reproducibility of outdoor testing was not adequate to form the basis of an Australian standard test. More recently the prospect of solar simulators being available has led the committee to re-examine this type of test and it is felt that the use of a solar simulator offers the greatest scope for control of the conditions which affect the test results. Experience in the use of solar simulators indicates that repeatability of ± 1.5 percent is achievable with this type of test.

The preparation of this standard for simulator testing does not diminish the value of outdoor testing over a longer term. It is anticipated that a standard dealing with outdoor tests may be prepared in due course. Outdoor tests are of particular value in allowing manufacturers to make preliminary evaluations of product performance before submitting them for simulator tests for such purposes as energy labelling.

© 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>
FOREWORD	4
 SECTION 1. SCOPE AND GENERAL	
1.1 Scope	5
1.2 Application	5
1.3 Referenced Documents	5
1.4 Definitions	5
 SECTION 2. TEST EQUIPMENT AND INSTRUMENTATION	
2.1 General Description	6
2.2 Lamp(s)	6
2.3 Adjustments	6
2.4 Uniformity of Irradiation	6
2.5 Radiation	6
2.6 Wind	7
2.7 Temperature Control	7
2.8 Instrumentation	7
2.9 System Dimensional Requirements	7
 SECTION 3. TEST CONDITIONS	
3.1 Pre-Test and Average Day Tests	8
3.2 Non-Solar Test	8
3.3 General	8
 SECTION 4. TEST PROCEDURE	
4.1 General	9
4.2 Preliminary Evaluation	9
4.3 Pre-Test	10
4.4 Average Day Test	11
4.5 Non-Solar Test (Bad Weather Test)	11
4.6 Presentation of Results	12
 APPENDICES	
A Daily Simulated Radiation Profile	13
B Identification Details For Solar Water Heaters Submitted for Type Testing ...	15
C Prediction of Performance Under Other Conditions	19
D Notation	21

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-