

Australian/New Zealand Standard™

**Domestic solid fuel burning appliance—
Pellet heaters—Determination of flue
gas emission**



AS/NZS 4886:2007

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee CS-062, Solid Fuel Burning Appliances. It was approved on behalf of the Council of Standards Australia on 19 January 2007 and on behalf of the Council of Standards New Zealand on 26 January 2007.
This Standard was published on 23 February 2007.

The following are represented on Committee CS-062:

Australasian Fire Authorities Council
Australian Building Codes Board
Australian Chamber of Commerce and Industry
Australian Home Heating Association
Australian Industry Group
Australian Institute of Building Surveyors
Australian Lung Foundation
Clean Air Society of Australia and New Zealand
Consumer Federation of Australia
Department of Environment and Conservation—NSW
Department of Environment and Conservation Western Australia
Department of the Environment and Heritage
Environment Canterbury
Environment Protection Authority (SA)
Environment Protection Authority (Vic.)
Fire Protection Association Australia
Ministry for the Environment—New Zealand
New Zealand Home Heating Association
Pellet Energy Association (Australia)
Solid Energy New Zealand
Testing Interest (Australia)
Testing Interest (New Zealand)
University of Western Australia

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at www.standards.com.au or Standards New Zealand web site at www.standards.co.nz and looking up the relevant Standard in the on-line catalogue.

Alternatively, both organizations publish an annual printed Catalogue with full details of all current Standards. For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

This Standard was issued in draft form for comment as DR 06583.

Australian/New Zealand Standard™

**Domestic solid fuel burning appliance—
Pellet heaters—Determination of flue
gas emission**

First published as AS/NZS 4886:2007.

COPYRIGHT

© Standards Australia/Standards New Zealand

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

Jointly published by Standards Australia, GPO Box 476, Sydney, NSW 2001 and Standards New Zealand, Private Bag 2439, Wellington 6020

ISBN 0 7337 8047 4

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee CS-062, Solid Fuel Burning Appliances.

The Standard sets out comprehensive specifications and instructions to enable the method to be used by any interested organization having the appropriate test equipment.

Results of testing to the method described are intended for use by consumers when selecting a domestic solid fuel burning appliance and regulatory bodies when setting allowable emission limits for domestic solid fuel burning appliances.

Particulate emissions are a good indicator of total emissions from solid fuel burning appliances. This Standard measures particulate emissions and uses them to provide limits on total emissions.

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

CONTENTS

	<i>Page</i>
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE	5
1.2 APPLICATION	5
1.3 REFERENCED DOCUMENTS	5
1.4 DEFINITIONS	6
1.5 PRINCIPLE	6
SECTION 2 APPARATUS AND REAGENT	
2.1 GENERAL	7
2.2 AMBIENT TEMPERATURE MEASUREMENT SYSTEM	7
2.3 AMBIENT AIR PRESSURE MEASUREMENT SYSTEM	7
2.4 WEIGHT DETERMINATION SYSTEM	7
2.5 SAMPLING TRAIN	7
2.6 DRAUGHT GAUGE	8
2.7 DESICCATORS	8
2.8 ACETONE	8
2.9 DISHES	8
2.10 CARBON DIOXIDE ANALYZER (OPTIONAL)	8
SECTION 3 CONFIGURATION OF TEST EQUIPMENT	
3.1 GENERAL	10
3.2 DILUTION TUNNEL	10
3.3 SAMPLING TRAIN	11
SECTION 4 CALIBRATIONS	
4.1 GENERAL	12
4.2 DRY GAS METER	12
4.3 DILUTION TUNNEL	12
4.4 WEIGHING INSTRUMENTS	12
4.5 TEMPERATURE MEASUREMENT	12
4.6 DIFFERENTIAL PRESSURE MANOMETER AND DRAUGHT GAUGE	12
4.7 CARBON DIOXIDE ANALYZER	12
SECTION 5 TEST FUEL	13
SECTION 6 TEST PROCEDURE	
6.1 GENERAL	14
6.2 DILUTION HOOD AND TUNNEL	14
6.3 DILUTION TUNNEL	14
6.4 TEST PREPARATION	14
6.5 TEST FUEL LOAD	14
6.6 BURN CYCLES	14
6.7 SAMPLING TRAIN OPERATION	15
6.8 SAMPLE TREATMENT	15
6.9 SAMPLE MEASUREMENT	15
6.10 CALCULATIONS	15

SECTION 7	MAXIMUM ALLOWABLE APPLIANCE PARTICULATE EMISSION FACTOR	
7.1	PELLET BURNING APPLIANCES	17
7.2	VALID TESTS	17
SECTION 8	TESTING DOCUMENTATION AND TEST REPORTS	
8.1	GENERAL	18
8.2	DOCUMENTATION.....	18
8.3	TEST REPORT	19
8.4	RETENTION OF RECORDS	19
8.5	PUBLISHED RESULTS	19
SECTION 9	VARIATION FROM TESTED APPLIANCE	
9.1	GENERAL	20
9.2	RETESTING EXEMPTION	20
SECTION 10	MARKING	21
APPENDICES		
A	DRY GAS METER CALIBRATION	22
B	DILUTION TUNNEL CALIBRATION	24
C	CARBON DIOXIDE INSTRUMENT CALIBRATION	25

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard**Domestic solid fuel burning appliance—Pellet heaters—Determination of flue gas emission**

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies a test method for determining the rate of particulate emission from automatic continuous feed, domestic pellet burning appliances and the associated particulate emission acceptance criteria.

1.2 APPLICATION**1.2.1 General**

This Standard applies to domestic pellet fuel burning appliances.

1.2.2 Included appliances

Appliances within the scope of this Standard include—

- (a) space-heating appliances; and
- (b) space-heating appliances which include water-heating devices.

1.2.3 Excluded appliances

Appliances excluded from this Standard are—

- (a) site-built masonry appliances;
- (b) central heating appliances;
- (c) cooking appliances;
- (d) appliances intended solely for water heating; and
- (e) appliances intended solely to distribute convective heat via ducting to locations remote from the appliance.

1.3 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS/NZS

- 4014 Domestic solid fuel burning appliances—Test fuels (series)
- 5077 Domestic solid fuel burning appliances—Pellet heaters—Determination of Installation requirements and construction components
- 5078 Domestic solid fuel burning appliances—Pellet heaters—Method for determination of power output and efficiency