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New Zealand Standard

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**Domestic solid fuel burning  
appliances—Test fuels**

**Part 3: Lignite briquettes**

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**STANDARDS AUSTRALIA**



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**The following organizations are represented on the Committees responsible for this Standard:**

**Standards Australia Committee CS/62, Solid Fuel Burning Appliances**

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Australian and New Zealand Environment and Conservation Council

Australian Assembly of Fire Authorities

Australian Chamber of Manufactures

Australian Consumers Association

Australian Federation of Consumer Organizations

Australian Fire Protection Association

Australian Institute of Building Surveyors, N.S.W. Chapter

Australian Solid Fuel & Wood Heating Association

Australian Uniform Building Regulations Coordinating Council

Business and Consumer Affairs, N.S.W.

Confederation of Australian Industry

Department of Environment and Planning, S.A.

Department of Mines and Energy, S.A.

Insurance Council of Australia

Metal Trades Industry Association of Australia

Ministry of Consumer Affairs

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Retail Traders Associations of Australia

New Zealand Home Heating Association

New Zealand Manufacturers' Federation

**Additional interests participating in preparation of Standard:**

**Standards Association of New Zealand 30/-, Building and Civil Engineering Divisional Board**

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## PREFACE

This Standard was prepared by the Standards Australia Committee on Solid Fuel Burning Appliances to provide testing agencies with a consistent fuel specification when testing solid fuel burning appliances for compliance with the requirements of AS 4012/NZS 7402 and AS 4013/NZS 7403. It is issued as a joint Standard under the terms of the Memorandum of Understanding between Standards Australia and the Standards Association of New Zealand with the objective of reducing technical barriers to trade between the two nations.

This Standard is part of a series used when testing solid fuel burning appliances intended for operation in Australia and New Zealand. Other Standards in this series are as follows:

Part 1: Hardwood

Part 2: Softwood

Part 4: Sub-bituminous coal

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## FOREWORD

Determination of reliable and repeatable test results when testing appliances for compliance with AS 4012/NZS 7402, *Domestic solid fuel burning appliances—Method for determination of power output and efficiency*, and AS 4013/NZS 7403, *Domestic solid fuel burning appliances—Method for determination of flue gas emission* is essential and requires control of many factors. This Standard has been prepared to provide the testing agencies with means for preparing consistent batches of test fuels so that the test results produced when testing different appliances may be readily compared and correlated.

The fuel types listed in this Standard are not exhaustive. The fuel types referred to in this series are only intended for use when testing appliances to be installed and operated in Australia and New Zealand. To achieve wider use of these Standards when testing appliances for compliance with AS 4012/NZS 7402 and AS 4013/NZS 7403, they have been structured to allow additional test fuel types to be added when the fuel type commonly used is different.

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## STANDARDS AUSTRALIA/STANDARDS ASSOCIATION OF NEW ZEALAND

**Joint Australian/New Zealand Standard**  
**Domestic solid fuel burning appliances—Test fuels****Part 3: Lignite briquettes**

**1 SCOPE** This Standard sets out a method for the determination of brown coal or lignite briquette test fuels to be used when applying the test methods described in AS 4012/NZS 7402 and AS 4013/NZS 7403.

**2 APPLICATION** Fuels complying with this Standard are to be used when testing solid fuel appliances for compliance with AS 4012/NZS 7402 and AS 4013/NZS 7403, when these appliances are intended for installation and operation in Australia and New Zealand.

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

AS

4012 Domestic solid fuel burning appliances—Method for determination of power output and efficiency

4013 Domestic solid fuel burning appliances—Method for determination of flue gas emission

NZS

7402 Domestic solid fuel burning appliances—Method for determination of power output and efficiency

7403 Domestic solid fuel burning appliances—Method for determination of flue gas emission

ISO

331 Coal—Determination of moisture in the analysis sample—Direct gravimetric method

1171 Solid mineral fuels—Determination of ash

1928 Solid mineral fuels—Determination of gross calorific value by the calorimeter bomb method and calculation of net calorific value

**4 PRINCIPLE** Sample pieces selected from each batch of test fuel are tested to ensure that each batch of fuel used in the described test method has a similar density, moisture content, calorific value and ash content.

**5 TEST FUEL** The test fuel shall be brown coal or lignite briquettes.

**5.1 Test sample** Samples shall be collected from each batch of test fuel. At least one sample shall be taken from each 500 kg of test fuel for density, calorific value and ash determination, and at least one sample shall be taken from each bag or 100 kg (whichever is less) of test fuel for moisture determination.

**5.2 Moisture content** The moisture content of the test fuel shall be from 12% to 16% of the wet mass, as determined in accordance with ISO 331.

**5.3 Density** Samples for determining density shall be in the moisture range specified in Clause 5.2. The density shall be in the range 1100 to 1300 kg/m<sup>3</sup> calculated by dividing the oven-dry mass by the volume before drying. The overall accuracy of this measurement shall be  $\pm 10\%$ .

**5.4 Ash content** The ash content of each batch of test fuel shall be determined in accordance with ISO 1171. The ash content shall be in the range 1.5% to 3.5% (oven-dry basis).

**5.5 Gross calorific value** The gross calorific value or high heating value of each batch of test fuel shall be determined according to ISO 1928, and shall be in the range 24 to 26 MJ/kg (oven-dry basis).

**6 REPORT** The following properties shall be reported for the test fuel samples:

- (a) Type and classification.
- (b) Density (oven-dry basis).
- (c) Moisture content (wet mass basis).
- (d) Ash content (oven-dry basis).
- (e) Calorific value (oven-dry basis).
- (f) The name of the testing agency, date of test and the name of the person responsible for determining the properties of test fuel batches.
- (g) A reference to this test method, i.e. AS 4014.3/NZS 7404.3.