

Australian Standard[®]

Higher rank coal—Size analysis

This Australian Standard was prepared by Committee MN/1, Coal and Coke. It was approved on behalf of the Council of Standards Australia on 24 January 1991 and published on 13 May 1991.

The following interests are represented on Committee MN/1:

Australasian Institute of Mining and Metallurgy
Australian Coal Association
Australian Coal Industry Research Laboratories
Australian Coal Preparation Society
Australian Institute of Energy
Bureau of Steel Manufacturers of Australia
Confederation of Australian Industry
CSIRO, Division of Coal and Energy Technology
Department of Minerals and Energy, N.S.W.
Department of Resource Industries, Qld
Electricity Supply Association of Australia
Institution of Engineers, Australia
Joint Coal Board
National Association of Testing Authorities, Australia
Queensland Coal Board
Royal Australian Chemical Institute
Standing Committee on Coalfield Geology of New South Wales
University of New South Wales
University of Queensland

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which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn Standards.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

This Standard was issued in draft form for comment as DR 80150 and DR 84043.

AS 3881—1991

Australian Standard[®]

Higher rank coal—Size analysis

First published as AS 3881—1991.

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

ISBN 0 7262 6787 2

PREFACE

This Standard was prepared by the Standards Australia Subcommittee on Coal Preparation, under the supervision of the Committee on Coal and Coke and the direction of the Minerals Standards Board. It describes sizing tests for higher rank coal.

During the preparation of this Standard, the following British and International Standards were considered: BS 1016, *Methods for the analysis and testing of coal and coke, Part 17: Size analysis of coal*, and ISO 1953, *Hard coals—Size analysis*.

CONTENTS

	<i>Page</i>
1 SCOPE	3
2 REFERENCED DOCUMENTS	3
3 DEFINITIONS	3
4 APPARATUS	3
5 SAMPLING AND SAMPLE PREPARATION	3
6 SIEVING PROCEDURES	4
7 CALCULATION AND PRESENTATION OF RESULTS	7
8 PREPARATION OF SAMPLES FOR GENERAL ANALYSIS FROM INDIVIDUAL SIZE FRACTIONS	7
9 TEST REPORT	7

© 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.

STANDARDS AUSTRALIA

Australian Standard
Higher rank coal—Size analysis

1 SCOPE This Standard sets out methods for the size analysis of higher rank coal (i.e. coal as defined in AS 2096 as having a gross specific energy of 21 MJ/kg or greater on an ash-free, moist basis *and* a gross specific energy of 27 MJ/kg or greater on a dry, ash-free basis).

Very fine coal (less than 45 μm) may be sized using microscopic, sedimentation or surface area measurement methods which are outside the scope of this Standard.

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

AS

1152	Test sieves
2096	Classification and coding systems for Australian coals
2418	Glossary of terms relating to solid mineral fuels
2646	Sampling of solid mineral fuels
2646.2	Part 2: Hard coal—Sampling from moving streams
2646.4	Part 4: Hard coal—Sampling from stationary situations
2646.6	Part 6: Hard coal—Preparation of samples
2706	Numerical values—Rounding and interpretation of limiting values

3 DEFINITIONS For the purpose of this Standard, the definitions given in AS 2418 apply.

4 APPARATUS

4.1 Test sieves—a series of test sieves of woven metal wire cloth, or perforated plate with square apertures, selected from those specified in AS 1152 and preferably from the following series:

125 mm, 90.0 mm, 63.0 mm, 45.0 mm, 31.5 mm, 22.4 mm, 16.0 mm, 11.2 mm, 8.00 mm, 5.60 mm, 4.00 mm, 2.80 mm, 2.00 mm, 1.40 mm, 1.00 mm, 710 μm , 500 μm , 355 μm , 250 μm , 180 μm , 125 μm , 90 μm , 63 μm , 45 μm .

4.2 Hardwood block—of approximate dimensions 150 mm \times 10 mm \times 10 mm.

4.3 Receivers and lids

4.4 Balance or weighing machine—capable of weighing to 0.05 percent of the initial mass of sample.

4.5 Trays—smooth trays, with dimensions complementary to sieve size; glazed paper is a suitable alternative if trays are not available.

4.6 Buchner funnel and flask

4.7 Filter paper

4.8 Oven—capable of being controlled at a temperature between 105°C and 110°C.

5 SAMPLING AND SAMPLE PREPARATION

5.1 Sampling The sample for size analysis should be taken in accordance with AS 2646.2 or AS 2646.4. Care should be taken during all stages of sampling, handling, transport and size analysis to ensure that breakage of coal and loss of coal dust are kept to a minimum.

5.2 Sample preparation

5.2.1 General The sample for size analysis should be prepared by the methods given in AS 2646.6.

5.2.2 Sample drying Where the coal is wet, the sample shall be dried sufficiently to prevent fine coal adhering to the larger particles during the sieving operation. Air-drying at ambient temperature is the recommended procedure to be adopted if other tests sensitive to oxidation of the coal are to be carried out. For coals containing more than 20 percent of wet fines under 2.8 mm, the sample should be spread in a thin layer and dried at a temperature not exceeding 40°C. The coal shall be allowed to equilibrate with the atmosphere before weighing.

5.2.3 Sample division for reduction of bulk Where the mass of undersize of a particular sieve is more than twice that given in Table 1, it may be reduced by sample division to not less than the figure given.

For samples having a nominal top size greater than 11.2 mm, where there is increased risk of breakage, sample division shall be by strip mixing and splitting or by fractional shovelling (see AS 2646.6). Where the top size is less than 11.2 mm, alternative division methods (e.g. riffing or mechanical sample division) may be used, provided that dust loss and size degradation are avoided.