Australian Standard™

Coal and coke—Analysis and testing

Part 12.2: Higher rank coal—Caking and coking properties—Determination of Gray-King coke type

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The following interests are represented on Committee MN/1:

Australasian Institute of Mining and Metallurgy

Australian Coal Association

Australian Coal Preparation Society

Australian Institute of Energy

Bureau of Steel Manufacturers of Australia

Coalfield Geology Council of New South Wales

CSIRO, Division of Energy Technology

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PREFACE

This Standard was prepared by the Standards Australia Committee MN/1, Coal and Coke as a revision of AS 1038.12.2—1990, *Coal and coke—Analysis and testing*, Part 12.2: *Carbonization properties of higher rank coal—Determination of Gray-King coke type.* Reference was made to ISO 502:1982, *Coal—Determination of caking power—Gray-King coke test*, and BS 1016: Section 107.2:1991, *Methods for analysis and testing of coal and coke—Caking and swelling properties of coal—Assessment of caking power by Gray-King coke test* in the preparation of this Standard.

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Australian Standard

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1 SCOPE This Standard sets out a method for the determination of the Gray-King coke type of higher rank coal. The test is designed to assess the coking properties of a coal or a blend of coals by carbonizing under standardized conditions.

NOTE: Interpretation of the results of the tests in terms of the coking properties may differ between coals.

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

AS

1038	Coal and coke—Analysis and testing	
1038.4	Part 4:	Coke—Proximate analysis
1038.16	Part 16:	Assessment and reporting of results
1038.21.1.1	Part 21.1.1:	Higher rank coal and coke—Relative density—Analysis sample/density bottle method
2243	Safety in laboratories (series)	
4264	Coal and coke—Sampling	
4264.1	Part 1:	Higher rank coal—Sampling procedures

SAA

TR2.3-2	Certified reference materials Electrode carbon—Preparation and certification of ASCRM 003-2 (for use in Gray-King coke type test (AS 1038.12.2))

ISO

502	Coal—Determination of caking power—Gray-King coke test

3 PRINCIPLE The coal is heated under standardized conditions to a final temperature of 600°C. The coke residue obtained is classified by strength and degree of swelling.

If the coke residue produced is so swollen that it fills the cross-section of the retort tube, the determination is repeated with a mixture of the coal and a suitable quantity of inert carbonaceous additive or equivalent material. For these highly swelling coals, the Gray-King coke type is defined by the minimum amount of inert carbonaceous additive required to produce a strong hard coke residue of the same volume as the original coal and inert carbonaceous additive mixture.

4 SAFETY For information on laboratory safety, reference should be made to the relevant parts of AS 2243.

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