Dup
Under revision see DR 88197 e
DR 89105

See also ASCRM - 003
SAA TR 2.3 - 1983

AS 1038, Part 12.2—1980
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Australian Standard 1038, Part 12.2—1980

SUPERSEDED ~~BY~~ in part AS 1038.13-1990 ? ? ?

METHODS FOR THE ANALYSIS AND TESTING OF COAL AND COKE

Part 12.2—ASSESSMENT OF CAKING POWER OF HARD COAL: GRAY-KING COKE TYPE TEST

STANDARDS ASSOCIATION OF AUSTRALIA

Incorporated by Royal Charter

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THE FOLLOWING INDUSTRIAL, SCIENTIFIC AND GOVERNMENTAL organizations and departments were officially represented on the committee entrusted with the preparation of this standard:

Australian Coal Association

Australian Institute of Energy

Australasian Institute of Mining and Metallurgy

Bureau of Steel Manufacturers of Australia

Coal Preparation Societies of NSW and Queensland

Confederation of Australian Industry

Department of Minerals and Energy, Victoria

Department of Mineral Resources, N.S.W.

Department of National Development

Electricity Supply Association of Australia

Institution of Engineers, Australia

Joint Coal Board

Queensland Coal Board

Royal Australian Chemical Institute

Universities

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AUSTRALIAN STANDARD

METHODS FOR THE ANALYSIS AND TESTING OF COAL AND COKE

Part 12.2
ASSESSMENT OF CAKING POWER OF HARD COAL: GRAY-KING COKE TYPE TEST

AS 1038, Part 12.2—1980

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PREFACE

This standard was prepared by the Association's Committee on Coal and Coke under the direction of the Chemical Standards Board as part of the process of revision and metrication of standards for the analysis and testing of coal and coke. With Part 12.1, it replaces AS K152, Part 12—1965 which was the endorsement of BS 1016:Part 12:1959. This standard is based on the revised (1979) edition of BS 1016, Part 12, and is technically equivalent to ISO 502, Coal—Determination of Caking Power—Gray-King Coke Test.

Part 12 of AS 1038 (formerly AS K152) comprises the following:

Part 12.1—Determination of the Crucible Swelling Number of Hard Coal

Part 12.2—Assessment of Caking Power of Hard Coal: Gray-King Coke Type Test

Part 12.3—Determination of Dilatometer Index of Hard Coal.*

The purpose of the Gray-King coke type test is to assess the caking properties of a coal or a blend of coals by carbonizing under standardized conditions. The Gray-King coke type is one of the parameters adopted for the classification of hard coals by type as specified in AS 2096, Classification System for Australian Hard Coals.

This standard requires reference to the following Australian standards:

AS 1038 Methods for the Analysis and Testing of Coal and Coke
Part 4—Proximate Analysis of Coke
Part 13—Tests Special to Coke

AS 1152 Test Sieves

AS 1676 Methods for the Sampling of Hard Coal

*In course of preparation.

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1 SCOPE. This standard sets out a method for the assessment of the caking properties of coal by carbonizing the coal under standardized conditions (Gray-King coke type test).

2 PRINCIPLE. The coal is heated under standardized conditions to a final temperature of 600°C. The coke residue obtained is classified by reference to a series of standard residues (see Fig. 4).

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

3 INERT ADDITIVE. The following inert additive is required:

Standard electrode carbon. High temperature electrode carbon complying with the following requirements:

(a) Moisture ....less than 1 percent (determined in accordance with AS 1038, Part 4).

(b) Volatile matter ....less than 1.5 percent (determined in accordance with AS 1038, Part 4).

(c) Ash..........................less than 5 percent (determined in accordance with AS 1038, Part 4).

(d) Bulk density at 25°C..........1000 kg/m^3 to 1050 kg/m^3 (determined in accordance with Appendix A).

(e) True relative density at 25°C...2.05 to 2.09 (determined in accordance with AS 1038, Part 13).