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Australian Standard 1038, Part 7—1981

METHODS FOR THE ANALYSIS AND TESTING OF COAL AND COKE

Part 7—ULTIMATE ANALYSIS OF COKE

STANDARDS ASSOCIATION OF AUSTRALIA

Incorporated by Royal Charter

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 and Development

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 7 ULTIMATE ANALYSIS OF COKE

AS 1038, Part 7—1981

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PREFACE

This standard was prepared by the Association's Committee on Coal and Coke as part of the process of revision and metrication of standards for the analysis and testing of coal and coke. It replaces AS K152, Part 7—1965, which had been withdrawn.

Whereas AS K152, Part 7 was BS 1016: Part 7: 1959 endorsed subject to Australian Amendment No 1, this standard is based on BS 1016: Part 7: 1977. The major alteration from AS K152, Part 7 is the deletion of the Liebig method for the determination of carbon and hydrogen as this method is little used now.

This standard requires reference to the following standards:

AS 1038	Methods for the Analysis and Testing of Coal and Coke Part 4—Proximate Analysis of Coke Part 8—Chlorine in Coal and Coke Part 16—Reporting of Results
AS 1152	Test Sieves
AS 1898	Methods for the Sampling of Coke
AS 2165	Burettes and Bulb Burettes
AS 2167	Straight Pipettes
BS 1016	Methods for the Analysis and Testing of Coal and Coke Part 13—Tests Specific to Coke
BS 1752	Laboratory Sintered or Fritted Filters

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard METHODS FOR THE ANALYSIS AND TESTING OF COAL AND COKE

PART 7—ULTIMATE ANALYSIS OF COKE

1 SCOPE. This standard sets out methods for determining carbon, hydrogen, nitrogen and sulphur in the analysis sample of coke.

2 SAMPLES. The coke used shall be the analysis sample ground to pass a 212 μm test sieve complying with AS 1152, taken and prepared in accordance with AS 1898.

3 DETERMINATION OF CARBON AND HYDROGEN.

3.1 Principle. A known mass of coke is burned at a temperature of 1350°C in a rapid current of oxygen, so that all the carbon is converted to carbon dioxide and all the hydrogen to water. Chlorine and oxides of sulphur are retained in the apparatus by silver gauze. The water formed is absorbed by magnesium perchlorate and the carbon dioxide by soda asbestos or soda lime.

The value for hydrogen is corrected for that present as moisture in the sample.

3.2 Reagents.

3.2.1 *General.* All reagents shall be of analytical reagent quality unless otherwise specified. Distilled or deionized water shall be used throughout.

3.2.2 *Special reagents.*

3.2.2.1 Magnesium perchlorate (dried), − 1.18 mm + 0.71 mm.

3.2.2.2

(a) Soda asbestos, − 2.80 mm + 1.40 mm and − 1.70 mm + 1.18 mm, preferably self-indicating; or

(b) Soda lime, − 2.0 mm + 1.2 mm, self-indicating.

3.2.2.3 Aluminium oxide, finely divided, approximately 0.1 mm particle size. Heat the aluminium oxide to above 800°C before use.

3.2.2.4 Sodium borate solution (0.025 mol/L).

3.2.2.5 Screened indicator solution, prepared as follows:

(a) Dissolve 0.2 g methyl red in 10 mL ethanol solution (300 mL/L). Add 1 g sodium hydroxide and heat the mixture at 40°C until solution is complete. Cool, and dilute to 100 mL with water.