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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

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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 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 It replaces AS K152, Part 7—1965, which had been withdrawn.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 Special 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, which is 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.