

Australian Standard™

**Coal and coke—Analysis and testing**

**Part 6.4: Higher rank coal and coke—  
Ultimate analysis—Carbon, hydrogen  
and nitrogen—Instrumental method**



This Australian Standard was prepared by Committee MN-001, Coal and Coke. It was approved on behalf of the Council of Standards Australia on 26 September 2005.  
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The following are represented on Committee MN-001:

Australasian Institute of Mining and Metallurgy  
Australian Building Codes Board  
Australian Coal Association  
Australian Coal Preparation Society  
Australian Institute of Energy  
Coalfield Geology Council of N.S.W.  
CSIRO Energy Technology  
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## PREFACE

This Standard was prepared by the Standards Australia Subcommittee MN-001-01, Coal Evaluation, under the direction of the Committee MN-001, Coal and Coke. This method was developed in accordance with new technology to afford a procedure with a shorter analysis time than those of AS 1038, Part 6.1: *Higher rank coal and coke—Ultimate analysis—Carbon and hydrogen* and Part 6.2: *Higher rank coal and coke—Ultimate analysis—Nitrogen*.

The objective of this Standard is to provide those responsible for the analysis of coal and coke with a uniform method for the instrumental analysis of carbon, hydrogen and nitrogen.

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## STANDARDS AUSTRALIA

## Australian Standard

## Coal and coke—Analysis and testing

## Part 6.4: Higher rank coal and coke—Ultimate analysis—Carbon, hydrogen and nitrogen—Instrumental method

**1 SCOPE**

This Standard sets out a method for the determination of carbon, hydrogen and nitrogen in coal and coke by instrumental methods.

**2 REFERENCED DOCUMENTS**

The following documents are referred to in this Standard:

## AS

- 1038 Coal and coke—Analysis and testing
- 1038.3 Part 3: Proximate analysis of higher rank coal
- 1038.4 Part 4: Coke—Proximate analysis
- 1038.16 Part 16: Assessment and reporting of results
- 2243 Safety in laboratories (series)
- 2418 Coal and coke—Glossary of terms
- 2434 Methods for the analysis and testing of lower rank coal and its chars
- 2434.7 Part 7: Lower rank coal—Determination of moisture in the analysis sample
- 2706 Numerical values—Rounding and interpretation of limiting values
- 4264 Coal and coke—Sampling
- 4264.1 Part 1: Higher rank coal—Sampling procedures
- 4264.2 Part 2: Coke—Sampling procedures
- 4264.3 Part 3: Lower rank coal—Sampling procedures

**3 DEFINITIONS**

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

**4 PRINCIPLE**

Carbon, hydrogen and nitrogen are determined concurrently in a single instrumental procedure. The quantitative conversion of the carbon, hydrogen and nitrogen into their corresponding gases ( $\text{CO}_2$ ,  $\text{H}_2\text{O}$ ,  $\text{NO}_x$ ) occurs during combustion of the sample at an elevated temperature in an atmosphere of oxygen.

Combustion products which would interfere with the subsequent gas analysis are removed. The carbon dioxide, water vapour and nitrogen fractions of the gas stream are then determined quantitatively by appropriate instrumental gas-analysis procedures.

**5 SAFETY**

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