

Australian Standard™

Coal and coke—Analysis and testing

**Part 9.3: Coal and coke—
Phosphorus—Ash digestion/
phosphomolybdovanadate method**

This Australian Standard was prepared by Committee MN/1, Coal and Coke. It was approved on behalf of the Council of Standards Australia on 30 November 1999 and published on 20 January 2000.

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 New South Wales
CSIRO 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 1038.9.3—1991, *Coal and coke—Analysis and testing, Part 9.3: Coal and coke—Phosphorus—Ash digestion method*.

This revision confirms the method for the spectrophotometric determination of phosphorus in coal and coke as phosphomolybdovanadate.

Editorial changes have been made to bring the Standard into line with current style.

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STANDARDS AUSTRALIA

Australian Standard Coal and coke—Analysis and testing

Part 9.3: Coal and coke—Phosphorus—Ash digestion/ phosphomolybdovanadate method

1 SCOPE

This Standard sets out a method for the determination of phosphorus in coal and coke, as phosphomolybdovanadate by spectrophotometry. Two alternative methods of sample decomposition are included.

This method is also applicable to the determination of phosphorus in coal ash and coke ash.

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
- 2508 Safe storage and handling information card (series)
- 2706 Numerical values—Rounding and interpretation of limiting values
- 3753 Recommended practice for chemical analysis by ultraviolet/visible spectrophotometry
- 4264 Coal and coke—Sampling
- 4264.1 Part 1: Higher rank coal—Sampling procedures
- 4264.2 Part 2: Coke—Sampling procedures

3 DEFINITIONS

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

4 PRINCIPLE

The carbonaceous matter of coal or coke is removed by ashing and phosphorus is extracted from the ash by decomposition with hydrochloric and hydrofluoric acids in a sealed vessel. After complexing fluoride with boric acid, molybdovanadate reagent is added to an aliquot of the solution. The absorbance of the yellow phosphomolybdovanadate formed is measured. The amount of phosphorus in the solution is obtained from a standard calibration.

5 SAFETY

For information on laboratory safety, reference should be made to the relevant parts of AS 2243 and AS 2508.