AS 1038.9.4—2006
Reconfirmed 2016



Australian Standard®

# Coal and coke—Analysis and testing

# Part 9.4: Higher rank coal—Phosphorus—Borate fusion/molybdenum blue 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 22 August 2006.
This Standard was published on 20 September 2006.

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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 NSW
- CSIRO, Energy Technology
- Department of Natural Resources, Mines and Water (Qld)
- Minerals Council of Australia
- National Generators Forum
- University of Newcastle
- University of New South Wales
- University of Queensland

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This Standard was issued in draft form for comment as DR 06250.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through public comment period.

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STANDARDS AUSTRALIA

# RECONFIRMATION

# OF
# AS 1038.9.4—2006
# Coal and coke—Analysis and testing
# Part 9.4: Higher rank coal—Phosphorus—Borate fusion/molybdenum blue method

## RECONFIRMATION NOTICE

Technical Committee MN-001 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

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Approved for reconfirmation in accordance with Standards Australia procedures for reconfirmation on 5 October 2016.

The following are represented on Technical Committee MN-001:

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National Association of Testing Authorities Australia
The University of New South Wales
The University of Queensland
University of Newcastle

NOTES

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# PREFACE

This Standard was prepared by the Standards Australia Committee MN-001, Coal and Coke, as part of the series for the determination of phosphorus in higher rank coal and coke.

The objective of this Standard is to provide those responsible for the determination of phosphorus in coal samples with a rapid, accurate, hydrofluoric acid free method.

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## 1 SCOPE

This Standard sets out a method for the spectrophotometric determination of phosphorus in coal by a borate fusion/molybdenum blue method using a rapid ashing technique. The method is rapid and does not involve the use of hydrofluoric acid.

An alternative method is also given for determination of phosphorus in coal, ashed in accordance with AS 1038.3. This method can be used if a very rapid turnaround time is not required, or if ash has already been prepared for analysis.

## 2 REFERENCED DOCUMENTS

The following documents are referenced in this Standard:

| | |
|---|---|
| AS | |
| 1038 | Coal and coke—Analysis and testing |
| 1038.3 | Part 3: Proximate analysis of higher rank coal |
| 1038.16 | Part 16: Assessment and reporting of results |
| 2418 | Coal and coke—Glossary of terms |
| 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 |
| AS/NZS | |
| 2243 | Safety in laboratories (series) |

## 3 DEFINITIONS

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

## 4 PRINCIPLE

The carbonaceous matter of coal or coke is removed using an ashing procedure. The ash is fused with lithium tetraborate and the resultant flux is dissolved in dilute nitric acid. Ammonium molybdate and ascorbic acid are added to an aliquot of the dissolved ash solution to produce a molybdenum blue complex of phosphorus. The absorbance of the blue colour is measured on a UV-vis spectrophotometer at 710 nm and the phosphorus content of the sample determined by comparison with absorbances of standard phosphorus solutions.

## 5 SAFETY

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

 