

Australian Standard™

**Coal and coke—Analysis and testing**

**Part 9.2: Higher rank coal—  
Phosphorus—Coal extraction/  
phosphomolybdate 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.

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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  
CSIRO, Division of Energy Technology  
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**Coal and coke—Analysis and testing**

**Part 9.2: Higher rank coal—  
Phosphorus—Coal extraction/  
phosphomolybdate vanadate method**

Originated as AS 1038.9.2—1992.  
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## PREFACE

This Standard was prepared by the Standards Australia Committee MN/1, Coal and Coke, to supersede AS 1038.9.2—1992.

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

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

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CONTENTS

	<i>Page</i>
1 SCOPE .....	3
2 REFERENCED DOCUMENTS .....	3
3 DEFINITIONS .....	3
4 PRINCIPLE .....	3
5 SAFETY .....	3
6 REAGENTS .....	4
7 APPARATUS .....	4
8 SAMPLE .....	5
9 PROCEDURE .....	5
10 CALCULATION .....	6
11 REPORTING OF RESULT .....	6
12 PRECISION .....	6
13 TEST REPORT .....	7

## STANDARDS AUSTRALIA

### Australian Standard

### Coal and coke—Analysis and testing

#### Part 9.2: Higher rank coal—Phosphorus—Coal extraction/phosphomolybdovanadate method

## 1 SCOPE

This Standard sets out a method for the determination of phosphorus in coal by acid extraction of coal and the determination of phosphorus as phosphomolybdovanadate by spectrophotometry.

## 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
1038.16	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

## 3 DEFINITIONS

For the purpose of this standard, the definitions given in AS 2418 and that below apply.

### 3.1 Higher rank coal

A coal having a gross calorific value of 21 MJ/kg or greater on an ash-free, moist basis and a gross calorific value of 27 MJ/kg or greater on a dry, ash-free basis.

## 4 PRINCIPLE

Phosphorus is extracted from coal by heating with hydrochloric and hydrofluoric acids in a sealed polypropylene bottle. Boric acid is added to complex fluoride and the coal residue is removed by filtration. Molybdovanadate reagent is added to an aliquot of the solution and 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.