AS 1038, Part 1—1980
UDC [662.66+662.74]: ~~543.812.2~~
: 620.16

Australian Standard 1038, Part 1—1980

METHODS FOR THE ANALYSIS AND TESTING OF COAL AND COKE
Part 1—TOTAL MOISTURE IN HARD COAL

STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter

b

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 N.S.W. and Queensland

Confederation of Australian Industry

Department of Minerals and Energy, Victoria

Department of Mineral Resources , N.S.W.

Department of National Development

Electricity Supply Association of Australia

Institution of Engineers, Australia

Joint Coal Board

Queensland Coal Board

Royal Australian Chemical Institute

Universities

This standard, prepared under the direction of Committee CH/15, Coal and Coke, was approved by the Chemical Standards Board on behalf of the Council of the Standards Association of Australia on 11 March 1980, and was published on June 1980.

This standard was issued in draft form for public review as DR 78073.

AUSTRALIAN STANDARD

METHODS FOR THE ANALYSIS AND TESTING OF COAL AND COKE

Part 1 TOTAL MOISTURE IN HARD COAL

AS 1038, Part 1—1980

First published (as AS K152, Part 1).....1965
AS 1038, Part 1 first published.....1980

PUBLISHED BY THE STANDARDS ASSOCIATION OF AUSTRALIA
STANDARDS HOUSE, 80 ARTHUR ST, NORTH SYDNEY, N.S.W.

ISBN 0 7262 1907 X

PREFACE

This standard was prepared by the Association's Committee on Coal and Coke under the direction of the Chemical Standards Board. It replaces AS K152, Part 1—1965 which was the endorsement of BS 1016:Part 1:1957, but which was withdrawn when BS 1016:Part 1:1957 was revised in 19[illegible]3.

This standard is based on, and is technically identical with ISO 58[illegible] Hard Coal—Determination of Total Moisture. Basically there is little difference between the methods specified in the 1965 edition and those in this revised edition. However the 1965 edition specified separate methods for coal of ½ inch and 6 BS mesh size whereas the methods specified herein are applicable to coals of 3 mm maximum particle size except for the method of drying in air which used coals with a maximum particle size of about 20 mm.

The standard contains three methods for the determination of the total moisture content of hard coal, *viz* direct volumetric method, drying in nitrogen, and drying in air. It requires reference to the following Australian standard:

AS 1676 Methods for the Sampling of Hard Coal

CONTENTS

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
METHODS FOR THE ANALYSIS AND TESTING OF COAL AND COKE

PART 1—TOTAL MOISTURE IN HARD COAL

1 SCOPE. This standard sets out three methods for the determination of the total moisture content of hard coal. The methods are as follows:

(a) Direct Volumetric Method (Method A).

(b) Drying in Nitrogen (Method B).

(c) Drying in Air (Method C).

2 APPLICATION. Methods A and B are applicable to all hard coals. Method C is applicable only to hard coals which are known not to be susceptible to significant oxidation.

3 DEFINITIONS. For the purpose of this standard, the following definitions apply:

3.1 Total moisture—the moisture in the coal as sampled.

3.2 Free moisture—the moisture which is lost by the coal sample in attaining equilibrium with the air to which it is exposed.

3.3 Moisture in air-dried coal—the moisture in the coal sample after it has attained equilibrium with the air to which it is exposed.

4 PRINCIPLE.

4.1 Method A (Applicable to all hard coals). The sample is heated in a flask under reflux conditions with boiling toluene. The moisture from the coal is entrained by the toluene vapour and carried to a condenser fitted with a graduated receiver. The water then separates in the receiver, to form the lower layer, while the excess toluene is returned to the distillation flask by means of an overflow. The moisture in the coal is calculated from the mass of the sample and the volume of water collected.

4.2 Method B (Applicable to all hard coals). The sample is heated in an oven at a temperature of 105°C to 110°C in a current of nitrogen and the moisture calculated from the loss in mass.