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Australian Standard 2418, Part 3—1982

GLOSSARY OF TERMS RELATING TO SOLID MINERAL FUELS

Part 3—TERMS RELATING TO BROWN COAL

STANDARDS ASSOCIATION OF AUSTRALIA
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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

CSIRO, Division of Fossil Fuels

Department of Minerals and Energy, Victoria

Department of Mineral Resources, N.S.W.

Department of National Development and Energy

Electricity Supply Association of Australia

Institution of Engineers, Australia

Joint Coal Board

Queensland Coal Board

Royal Australian Chemical Institute

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AUSTRALIAN STANDARD

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Part 3 TERMS RELATING TO BROWN COAL

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PREFACE

This standard was prepared by the Association's Committee on Coal and Coke under the direction of the Minerals Standards Committee as a part revision of AS K149—1966. This particular part contains terms relating to brown coal. Terms relating to the sampling and analysis of brown coal are contained in AS 2418, Part 4.

Other parts of AS 2418 are as follows:

Part 1—Terms Relating to Coal Preparation
Part 2—Terms Relating to Coal Mining and Geology
Part 4—Terms Relating to Sampling, Sample Preparation, Analysis, Testing and Statistics
Part 5—Terms Relating to the Petrographic Analysis of Bituminous Coals and Anthracite (Hard Coal)
Part 6—Terms Relating to Coal Utilization and Coke
Part 7—Terms Relating to Coal Classification.

This standard requires reference to the following standards:

AS 2096	Classification System for Australian Hard Coals
AS 2434	Methods for the Analysis and Testing of Brown Coal and Brown Coal Char Part 1—Determination of the Moisture Content of Brown Coal
ASTM D388	Standard Classification of Coals by Rank.

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

GLOSSARY OF TERMS RELATING TO SOLID MINERAL FUELS

PART 3—TERMS RELATING TO BROWN COAL

Term	Explanation
apparent density	*See* **density, apparent.**
ash	The inorganic residue left after the incineration of coal. In the case of low rank coals, ash can differ considerably from the mass and composition of the mineral matter in the coal and can also vary considerably depending on the combustion conditions and sampling procedure. For analysis purposes, the ash percentage is measured by incineration of a coal sample to constant mass under standard conditions.
brown coal	Non-caking lower rank coal, characterized by a specific energy of less than 19.3 MJ/kg gross bed-moist ash-free specific energy. According to the ECE (Economic Commission for Europe) International Classification of Hard Coals and the Australian Classification for Hard Coals (AS 2096), the term brown coal is synonymous with soft coal and applies to coals below the hard coal range, i.e. with bed-moist, mineral-matter-free, gross specific energies less than 24 MJ/kg. This definition encompasses the lignitic and much of the sub-bituminous coal classes defined in the American coal classification system (ASTM D388). In Australian coal terminology, the description 'brown coal' is generally restricted to coals at the low-rank end of the soft coal range (e.g. with gross wet specific energies (mineral-matter-free) less than 19.3 MJ/kg). Soft coals of higher rank are frequently described as sub-bituminous. In this sense, the terms brown coal and lignite are synonymous.
brown coal, air-dried	Brown coal dried in air to moisture equilibrium under ambient conditions.
brown coal, bed-moist	Brown coal containing its natural bed-moisture content.
brown coal, dry	Brown coal reduced to zero moisture content as determined in accordance with AS 2434, Part 1.
brown coal, soft (weich) **matt (matt)** **bright (glanz)**	European terminology to describe brown coals of varying rank, increasing from soft to bright.
brown coal briquette	A solid lump fuel of enhanced heating value manufactured from brown coal by crushing (normally to − 6 mm), drying to about the air-dried moisture content, and pressing into the desired form without the addition of a binder.
brown coal char	Carbonaceous residue remaining after the devolatilization or carbonization of brown coal. The char retains the original form of the coal without plastic deformation. High volatile (low temperature) char containing more than 5 percent volatile matter results from incomplete devolatilization. High volatile chars can be prepared by 'low' temperature carbonization in the range 450°C to 700°C. Char which has been devolatilized at high temperatures (> 700°C) and therefore has a low volatile content (< 5 percent) is termed low volatile (high temperature) char.
carbonyl group	A functional group of the form $-C\lessgtr^{O}$ encountered in the molecular structure of low rank coals.
carboxylic group	A functional group of the form $-C\lessgtr^{O}_{OH}$ or COOH, principally responsible for the acid-base and ion exchange characteristics of low rank coals.
carboxylate group	The ionized form of the carboxylic acid group, $-C\lessgtr^{O}_{O-}$ or COO− ; the point of bonding of exchangeable cations to the organic coal substance.
coal	A predominantly organic sedimentary rock formed from variously altered plant remains, consolidated under superimposed strata load. The characteristics of different coals are due to variations in the kinds of source material, variations in depositional environment, preservation, the conditions and degree of change resulting from their geological history and the range, amount, and proportions of the impurities present.
coalification	The physical and chemical change or metamorphism of plant material into coal. It includes the geochemical process of metamorphism and the biochemical process of diagenesis.
coal measures	A layered sequence essentially of sedimentary rocks containing coal seams.
coal petrography	*See* **coal *and* petrography.**
coal petrology	*See* **coal *and* petrology.**