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SAMPLING OF SOLID MINERAL FUELS
Part 3—COKE—SAMPLING FROM MOVING STREAMS

STANDARDS ASSOCIATION OF AUSTRALIA
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The following interests are represented on Committee MN/1:

Australasian Institute of Mining and Metallurgy

Australian Coal Association

Australian Coal Industry Research Laboratories Ltd

Australian Institute of Energy

Bureau of Steel Manufacturers of Australia

Coal Preparation Societies of New South Wales and Queensland

Confederation of Australian Industry

CSIRO, Division of Fossil Fuels

Department of Mineral Resources, N.S.W.

Department of Mines, Qld

Department of Resources and Energy

Electricity Supply Association of Australia

Institution of Engineers, Australia

Joint Coal Board

Queensland Coal Board

Royal Australian Chemical Institute

Standing Committee on Coalfield Geology, N.S.W.

State Chemical Laboratory, Vic.

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AUSTRALIAN STANDARD

SAMPLING OF SOLID MINERAL FUELS

Part 3
COKE—SAMPLING FROM MOVING STREAMS

AS 2646.3—1985

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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 Board. It supersedes (in part) AS 1898—1976, Methods for the Sampling of Coke.

This standard is one of a series of standards dealing with the sampling of solid mineral fuels. The other standards in the series are as follows:

Part 1—Guide to the Use of Parts 2 to 8
Part 2—Hard Coal—Sampling from Moving Streams
Part 4—Hard Coal—Sampling from Stationary Situations
Part 5—Coke—Sampling from Stationary Situations
Part 6—Hard Coal—Preparation of Samples
Part 7—Coke—Preparation of Samples
Part 8—Determination of Precision and Bias

The standard has been produced in association with the preparation of standards on hard coal and in recognition of the fact that a large proportion of sampling is carried out from moving streams of coke and that there is insufficient detail provided in AS 1898—1976.

The principles in this standard are based on sampling coke from the falling stream of a conveyor belt. Further investigative work is being carried out on other forms of sampling from moving streams, particularly with respect to cross-belt sampling.

CONTENTS

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Australian Standard
for
SAMPLING OF SOLID MINERAL FUELS

PART 3—COKE—SAMPLING FROM MOVING STREAMS

1 SCOPE. This standard sets out methods for the sampling of coke from moving streams for both routine and special purposes to provide samples for general analysis and for the determination of total moisture.

Provisions of this standard do not include stopped-belt sampling. AS 2646.5 deals with the situation in which the conveyor belt is stopped for the purpose of sampling. Although this standard is intended to cover all coke sampling from moving streams, the procedures recommended may not be applicable in cases of extreme segregation of material as found in coke which is very wet with moisture run-off or in coke which is very dry because of generation of dust. In such cases it may be necessary to revert to stopped-belt sampling.

Procedures for preparation of samples are given in AS 2646.7.

2 REFERENCED DOCUMENTS. The following standards are referred to in this standard:

AS 1152 Test Sieves

AS 2646 Sampling of Solid Mineral Fuels,
Part 5—Coke—Sampling from Stationary Situations
Part 7—Coke—Preparation of Samples
Part 8—Determination of Precision and Bias.

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

3.1 Coefficient of variation (v)—in mass-basis sampling, the percentage of the standard deviation (s) relative to the mean value ($\bar{x}$) of the mass of increments, as shown below:

$$v\ (\%) = \frac{s}{\bar{x}} \times 100$$

3.2 Constant mass division—the method of sample division in which the retained portion from individual increments is of uniform mass.

3.3 Divided increment—the quantity of coke obtained by division of the increment in order to decrease its mass.

3.4 Division—the process of decreasing the sample mass (without modification of the particle size of the constituent pieces) where a representative part of the sample is retained while the remainder may be rejected.

3.5 Duplicate sampling—a particular case of replicate sampling (with only two replicate samples), for the purpose of estimating the average precision of sampling from a number of lots or sampling units.

3.6 Fixed rate division—the method of sample division in which the retained portion from individual increments is a constant proportion of the original mass.

3.7 Gross sample—a sample formed when all the increments collected from a lot are combined for reduction to a laboratory sample.

3.8 Increment—the quantity taken by—

(a) a single pass of the sampling device in the case of mechanical sampling;

(b) either a single pass or the combined sum of multiple passes of the sampling implement in the case of manual sampling.

3.9 Lot—a quantity of coke delivered at one time. The lot may be composed of one or more sampling units.

3.10 Manual sampling—the operation of sampling when the increments forming subsamples and gross samples are taken by human effort using a hand-held implement.

3.11 Mass-basis sampling—the method of taking increments at uniform mass intervals throughout the sampling unit or lot.

3.12 Mechanical sampling—the operation of sampling when the increments forming subsamples and gross samples are taken by a sampling machine.

3.13 Nominal top size—the size of aperture of the finest sieve (complying with AS 1152) through which a minimum of 95 percent of the mass of the material passes.

3.14 Random stratified sampling—the taking of increments at irregular intervals within constant intervals of time, mass or space.

3.15 Replicate sampling—the taking of increments from the lot or sampling unit at equal intervals of time, mass or space. The increments are placed in rotation into different containers to give several replicate samples of approximately equal mass. By the procedure of replicate sampling it is possible to estimate the precision of sampling.

3.16 Sampling unit—the discrete units (trains, sections of belt, daily production) which comprise the lot.

3.17 Standard deviation—the positive square root of the variance.

3.18 Strata—approximately equal parts of a lot or sampling unit based on intervals of time, mass or space.