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SAMPLING OF SOLID MINERAL FUELS Part 7—COKE—PREPARATION OF SAMPLES

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Australian Coal Industry Research Laboratories Ltd
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AUSTRALIAN STANDARD

SAMPLING OF SOLID MINERAL FUELS
Part 7
COKE—PREPARATION OF
SAMPLES

AS 2646.7—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. The revision has been undertaken because of changes in the techniques involved in the preparation of samples of coke for physical testing and chemical analysis.

This standard is one of a series of standards for 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 3—Coke—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 8—Determination of Precision and Bias

The standard should be read in conjunction with other standards in the series.

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

for

SAMPLING OF SOLID MINERAL FUELS

PART 7—COKE—PREPARATION OF SAMPLES

1 SCOPE. This standard sets out methods for preparation of samples of coke collected in accordance with procedures specified in AS 2646.3 and AS 2646.5.

AS 2646.3 deals with the sampling of coke from moving streams, and some on-line sampling installations perform part of the sample preparation. Aspects of on-line sample preparation are covered in that standard.

2 APPLICATION. The object of sample preparation is to produce a sample suitable for analysis or testing which is representative of the original sample. This standard describes methods for the preparation of samples for the following procedures:

- (a) Determination of total moisture.
- (b) General analysis where a sample prepared to a nominal top size of 212 μm is suitable. Mass of the general analysis sample depends upon the analysis required. A minimum mass of 30 g is recommended.
- (c) Special tests for which coke prepared to 212 μm nominal top size is not suitable. A knowledge of the testing to be done is necessary so that adequate sample mass may be retained at a suitable nominal top size at an intermediate stage in sample preparation.

Table 1 lists those tests for coke samples for which material prepared to 212 μm nominal top size is not suitable.

- (d) Air-drying and subdivision of samples, necessary for preparation of samples for size analysis and tests special to coke.

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

- AS 1038 Methods for the Analysis and Testing of Coal and Coke
 - Part 2—Total Moisture in Coke
 - Part 13—Tests Special to Coke
 - Part 18—Size Analysis of Coke
- AS 1152 Test Sieves
- AS 2646 Sampling of Solid Mineral Fuels
 - Part 3—Coke—Sampling from Moving Streams
 - Part 5—Coke—Sampling from Stationary Situations
 - Part 8—Determination of Precision and Bias

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

4.1 Bias—the tendency to obtain a value which is either persistently higher or persistently lower than the

true value. Alternatively, the difference between the true value and the average result obtained from a large number of determinations using a biased method.

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

4.3 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.

4.4 Error—the procedures of sampling, sample preparation and analysis are necessarily imperfect and the experimental results will be dispersed about the true figures. The differences between the experimental results and the true figures are described as errors which can be systematic (bias), random, or due to either loss or contamination of sample.

4.5 General analysis sample—the sample crushed to pass a sieve aperture of 212 μm used for the determination of most physical and chemical characteristics of the coke.

4.6 Laboratory sample—the sample delivered to the laboratory for analysis and testing.

4.7 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 material passes.

4.8 Pass—the passage of the retained material once through a sample divider.

4.9 Precision—a measure of the way in which a set of observations agree with each other.

4.10 Random errors—errors which arise from the experimental procedure leading to results which are sometimes higher and sometimes lower than the true figures. The average of a number of experimental results subject only to random errors will approach the true figure as the number of results increases.

4.11 Reduction (in particle size)—the decrease in the dimension of the pieces constituting the sample without modification of the mass of the sample or of its composition.

4.12 Sample preparation—the process of preparing the sample for analysis or testing. It covers air-drying, mixing, particle size reduction, and division, and may be performed in several stages.

4.13 Size analysis sample—a sample taken specifically for the determination of size analysis.

4.14 Stage—a sequence of operations comprising reduction in particle size, mixing and culminating in sample division. The number of stages in sample preparation is equal to the number of divisions made.