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ALUMINIUM ORES—SAMPLING
Part 1—SAMPLING FROM MOVING STREAMS

STANDARDS ASSOCIATION OF AUSTRALIA
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The following interests are represented on Committee MN/3:

Aluminium Ore Producers

CSIRO, Division of Mineral Chemistry

CSIRO, Division of Mineral Physics

Department of Resources and Energy

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AUSTRALIAN STANDARD

ALUMINIUM ORES—SAMPLING
Part 1
SAMPLING FROM MOVING STREAMS

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PREFACE

This standard was prepared by the Association's Committee on Aluminium Ores under the direction of the Minerals Standards Board. At present there are no standards for the sampling of aluminium ores although work is continuing on this topic in ISO/TC 129—Aluminium Ores.

This standard has been prepared to formalize the procedures currently in use in the industry.

The other parts of this standard are as follows:

Part 2—Sampling from Stationary Situations
Part 3—Preparation of Samples*
Part 4—Determination of Quality Variation, Precision and Bias*
Part 5—Determination of Moisture Content of Bulk Material*

*In course of preparation.

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
ALUMINIUM ORES—SAMPLING

PART 1—SAMPLING FROM MOVING STREAMS

1 SCOPE. This standard sets out requirements for the sampling of aluminium ores from moving streams to provide gross samples for sample preparation.

The provisions of this standard do not include stopped-belt sampling. AS 2806.2 deals with the situation in which the conveyor belt is stopped for the purpose of sampling. Although this standard is intended to cover all aluminium ore sampling from moving streams, the procedures recommended may not be applicable in cases of extreme segregation of material, e.g. due to moisture run-off for a very wet ore or dust generation for a very dry ore. In such cases it may be necessary to revert to stopped-belt sampling.

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

AS 1152 Test sieves

AS 2806 Aluminium Ores—Sampling
Part 2—Sampling from Stationary Situations
Part 3—Preparation of Samples*
Part 4—Determination of Quality Variation, Precision and Bias*

ISO 3534 Statistics—Vocabulary and Symbols

3 DEFINITIONS. For the purpose of this standard, definitions given in ISO 3534 and the following apply:

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

3.2 Cut—a single pass of the sampling device through the ore stream.

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

3.4 Division—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—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 primary increments or subsamples, either as taken or after having been prepared individually to a particular stage of sample preparation, are combined in correct proportions for preparation of 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 Isolated lot—a lot that is to be sampled without knowledge of its sampling characteristics.

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

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

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

3.13 Mechanical sampling—sampling when increments forming subsamples and gross samples are taken by a sampling machine.

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

3.15 Quality variation—a measure of the heterogeneity of a lot. It is the standard deviation of the quality characteristics between strata.

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

3.17 Reduction (in particle size)—decrease in dimension of the pieces constituting the sample without modification of the mass nor of the composition.

3.18 Replicate sampling—taking increments from the lot at equal intervals of time, mass or space. Increments are placed in rotation into different containers to give several replicate samples of approximately equal mass.

3.19 Sampling unit—discrete units (e.g. trains, section of belt, daily production) which comprise the lot.

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

* In course of preparation