Australian Standard®

# Aluminium ores—Sampling

## Part 6: Methods for checking the bias of sampling

This Australian Standard was prepared by Committee MN/3, Aluminium Ores. It was approved on behalf of the Council of Standards Australia on 8 October 1993 and published on 17 January 1994.

---

The following interests are represented on Committee MN/3:

Aluminium Development Council

CSIRO, Division of Mineral Products

CSIRO, Division of Mineral and Process Engineering

Department of Primary Industries and Energy

Additional interests participating in preparation of Standard:

Aluminium ore mining companies

Aluminium smelters

Producers of alumina

Producers of aluminium products

Superintending organization

---



---

*This Standard was issued in draft form for comment as DR 88211.*

Australian Standard®

# Aluminium ores—Sampling

# Part 6: Methods for checking the bias of sampling

First published as AS 2806.6— 1994.

PUBLISHED BY STANDARDS AUSTRALIA
(STANDARDS ASSOCIATION OF AUSTRALIA)
1 THE CRESCENT, HOMEBUSH, NSW 2140

ISBN 0 7262 8651 6

# PREFACE

This Standard was prepared by the Standards Australia Committee on Aluminium Ores, under the direction of the Multitechnics Standards Policy Board. It is Part 6 of the AS 2806 series of Standards on the sampling of aluminium ores. Other parts of this series are as follows:

Part 1: Sampling procedures
Part 3: Preparation of samples
Part 4: Determination of heterogeneity of constitution
Part 5: Methods for checking the precision of sampling
Part 7: Determination of quality variation

This Standard should be read in conjuction with other Standards in the series.

This Standard is technically equivalent to ISO 10226:1991, *Aluminium ores—Experimental methods for checking the bias of sampling.*

The term 'informative' has been used in this Standard to define the application of the Appendices to which it applies. An 'informative' appendix is for information and guidance only.

---

# CONTENTS

STANDARDS AUSTRALIA

# Australian Standard

# Aluminium ores—Sampling

## Part 6: Methods for checking the bias of sampling

**1 SCOPE** This Standard specifies experimental methods for checking the bias of the sampling of aluminium ores, where the sampling is carried out in accordance with the methods specified in AS 2806.1. These methods may also be applied for checking the bias of sample preparation, where the sample preparation is carried out in accordance with the methods specified in AS 2806.3. These methods for analysing experimental data may also be applied for checking a possible significant difference in the result obtained from the samples of one lot collected at different places, for example, a loading point and a discharging point.

NOTE: Numerical examples of calculations are given in Appendix A.

**2 REFERENCED DOCUMENTS** The following documents are referred to in this Standard:

AS
2806 Aluminium ores—Sampling
2806.1 Part 1: Sampling procedures
2806.3 Part 3: Preparation of samples

**3 GENERAL REQUIREMENTS** In the methods specified in this Standard, the results obtained from the method to be checked for bias (referred to as Method B) are compared with the results of a reference method (referred to as Method A) which is considered to produce practically unbiased results, from technical and empirical viewpoints.

In the event that there is no statistically significant difference between the results obtained from Method B and those obtained from Method A, Method B may be adopted as a routine method.

NOTE: In this Standard, bias is assessed by application of the *t*-test (one-sided) at the 5% level of significance, by determining whether the difference between the results of Method A and Method B are due to random chance variations, or whether the results are statistically different.

The number of paired sets of measurements (data sets) shall not be less than 20. The number of data sets required depends on the standard deviation of the differences based on 20 data sets and on the value of the bias, $\delta$, to be detected as specified in Clause 5.

Any chemical or physical characteristic may be used. The most commonly used characteristics are alumina, moisture and silica content. Bias may not always be present for just one parameter; therefore several parameters, preferably all those that would subsequently be of interest, should be examined to determine whether bias exists. Characteristics to be tested need to be determined before the experiment begins.

Where increments for Method A and Method B can be taken from closely adjacent portions of the ore, it is recommended that sample preparation and testing be carried out on each increment individually. A comparison should never be made using combined data from increments, subsamples or gross samples.