Australian Standard™

Guide to the sampling of particulate materials

Part 3: Estimating sampling precision

Standards Australia

This Australian Standard was prepared by Committee MN-010, Sampling of Minerals. It was approved on behalf of the Council of Standards Australia on 25 June 2002 and published on 12 July 2002.

The following are represented on Committee MN-010:

Australasian Institute of Mining and Metallurgy

Australian Coal Association

Bureau of Steel Manufacturers of Australia

CSIRO Mathematical and Information Sciences

CSIRO Minerals

Minerals Council of Australia

The Chamber of Minerals and Energy of Western Australia Inc

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This Standard was issued in draft form for comment as DR 00223.

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First published as AS 4433.3—2002.

Published by Standards Australia International Ltd
GPO Box 5420, Sydney, NSW 2001, Australia

ISBN 0 7337 4718 3

PREFACE

This Guide was prepared by the Standards Australia Committee MN-010, Sampling of Minerals as a basis for preparing Standards for the sampling of a range of minerals from moving streams and stationary situations.

This Guide is Part 3 of the AS 4433 series for the sampling of particulate materials, to be used for the preparation of sampling Standards for a number of mineral commodities. Other Standards in the series are as follows:

Part 1: Sampling procedures

Part 2: Preparation of samples

Part 4: Checking for bias

Part 5: Sampling of slurries

Part 6: Inspection of mechanical sampling systems

An investigation of sampling theory has been carried out to justify the principles adopted.

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1 SCOPE

This Guide sets out methods for checking and adjusting the precision of sampling of particulate materials, and checking the precision of subsequent sample preparation and measurement.

The procedures described in this Guide apply to sampling of particulate materials from both moving streams and stationary situations, and to the subsequent sample preparation and measurement.

Experiments to check for precision and bias should be carried out for all sampling programs, whether they use manual effort or employ mechanical devices. The experiments should be implemented on a regular basis. Procedures should be repeated whenever significant change has occurred in the character of materials being sampled, especially in the nominal top size or particle size distribution. Check experiments for precision and bias for the installation as a whole should always be conducted when a mechanical installation is commissioned or when principal parts are modified.

Methods for checking for bias are described separately in AS 4433.4.

2 REFERENCED DOCUMENTS

The following documents are referred to in this Guide:

AS
1152 Specification for test sieves

4433 Guide to the sampling of particulate materials
4433.1 Part 1: Sampling procedures
4433.2 Part 2: Preparation of samples
4433.4 Part 4: Checking for bias

ISO
12744 Copper, lead and zinc sulfide concentrates—Experimental methods for checking the precision of sampling

3 DEFINITIONS

For the purpose of this Guide, the definitions given in Appendix A apply.

4 NOTATION

A list of symbols used in this Guide is presented in Appendix B.

5 ACCURACY AND PRECISION OF SAMPLING

5.1 General

An experimental measurement can usefully be regarded as the result of the processes of sampling, sample preparation and laboratory testing. This result can always be regarded as being equal to the true (and generally unknown) reference value plus an experimental error

