AS 4433.5—2005

Australian Standard™

Guide to the sampling of particulate materials

Part 5: Sampling of slurries

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 August 2005.
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The following are represented on Committee MN-010:

Australasian Institute of Mining and Metallurgy
Australian Coal Association
CSIRO Mathematical and Information Sciences
CSIRO Minerals
The Royal Australian Chemical Institute

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Part 5: Sampling of slurries

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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 mineral slurries from moving streams and stationary situations.

This Guide is Part 5 of the AS 4433 series for the sampling of particulate materials, to be used as a basis for the preparation of sampling standards for a number of mineral commodities. Other Parts in the series are as follows:

Part 1: Sampling procedures

Part 2: Preparation of samples

Part 3: Estimating sampling precision

Part 4: Checking for bias

Part 6: Inspection of mechanical sampling systems

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1 SCOPE

This Guide sets out basic methods for sampling particulate material that is mixed with a liquid, usually water, to form a slurry. In industry and in the mining and mineral processing literature, slurry is also referred to as pulp, but this term is not used in this Guide. At very high ratios of fine particulate solids to liquids where material assumes a soft plastic form, the mixture is correctly termed a paste. Sampling of pastes is not covered in this Guide.

If the liquid contains chemical compounds in solution rather than as particulate material, the liquid is more correctly termed a liquor. While the principles of sampling slurries generally apply to liquors as well as slurries, this Guide does not cover all aspects of liquor sampling.

The procedures described in this Guide apply to sampling of particulate materials that are transported in moving streams as slurries. These streams may fall freely or be confined in pipes, launders, flumes, sluices, spirals or similar channels.

Sampling of slurries in stationary situations, such as a settled or even a well-stirred slurry in a holding vessel or dam, is not recommended and is not covered in this Guide.

The procedures described in this Guide are designed to provide samples representative of the slurry solids and particle size distribution of the slurry under examination. After filtering the slurry sample and measuring the fluid volume, damp samples of the contained particulate material in the slurry are available for drying (if required) and measurement of one or more characteristics in an unbiased manner and with a known degree of precision. The characteristics are measured by chemical analysis, physical testing or both.

The sampling methods described are applicable to slurries that require inspection to verify compliance with product specifications, determination of the value of a characteristic as a basis for settlement between trading partners or estimation of a set of average characteristics and variances that describes a system or procedure. The sampling methods are also applicable to acceptance sampling.

Provided that flow rates are not too high, the reference method against which other sampling procedures are compared is one where the entire stream is diverted into a vessel for a specified time or volume interval. This method corresponds to the stopped-belt method described in AS 4433.1.

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
4433.6	Part 6: Inspection of mechanical sampling systems

