

2862.3

~~REFERENCE COPY
INFORMATION CENTRE
STANDARDS AUSTRALIA~~

SUPERSEDED BY:

AS 2862.3-1999

AS 2862.3—1986
UDC 661.249.21:620.11

for Revision see DR 98655CP

Use [549.332+549.228+549.321]:620.11

Australian Standard[®] 2862.3—1986

**COPPER, LEAD AND ZINC SULPHIDE
CONCENTRATES—
SAMPLING**

**Part 3—PREPARATION OF
SAMPLES**



STANDARDS ASSOCIATION OF AUSTRALIA

Incorporated by Royal Charter



This Australian standard was prepared by Committee MN/5 Copper, Lead and Zinc Ores and Concentrates. It was approved on behalf of the Council of the Standards Association of Australia on 18 February 1986 and published on 5 May 1986.

The following interests are represented on Committee MN/5:

Australasian Institute of Mining and Metallurgy
Australian Mineral Development Laboratories
Australian Mining Industry Council
CSIRO, Institute of Energy and Earth Resources

Review of Australian Standards. To keep abreast of progress in industry, Australian standards are subject to periodic review and are kept up-to-date by the issue of amendments or new editions as necessary. It is important therefore that standards users ensure that they are in possession of the latest edition, and any amendments thereto.

Full details of all SAA publications will be found in the Catalogue of SAA Publications; this information is supplemented each month by SAA's journal 'The Australian Standard', which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn standards.

Suggestions for improvements to Australian standards, addressed to the head office of the Association, are welcomed. Notification of any inaccuracy or ambiguity found in an Australian standard should be made without delay in order that the matter may be investigated and appropriate action taken.

This standard was issued in draft form for comment as DR 84284. ✓

AUSTRALIAN STANDARD

**COPPER, LEAD AND ZINC SULPHIDE
CONCENTRATES—
SAMPLING**

Part 3

PREPARATION OF SAMPLES

AS 2862.3—1986

First published1986 ✓

PUBLISHED BY THE STANDARDS ASSOCIATION OF AUSTRALIA
STANDARDS HOUSE, 80 ARTHUR ST, NORTH SYDNEY, N.S.W.

ISBN 0 7262 4143 1



PREFACE

This standard was prepared by the Association's Committee on Copper, Lead and Zinc Ores and Concentrates under the direction of the Minerals Standards Board as one of a proposed series of standards for the sampling of sulphide concentrates. It sets out techniques for the preparation of samples of copper, lead and zinc sulphide concentrates for chemical analysis and the determination of moisture.

Correct sample preparation is a prerequisite for the accurate analysis of sulphide concentrates as the material has a tendency to oxidize.

This standard is Part 3 of a series of standards. Other standards in this series are as follows:

AS 2862.1—Sampling from Moving Streams*

AS 2862.2—Sampling from Stationary Situations*

AS 2862.4—Determination of Precision and Bias*

* In course of preparation.

CONTENTS

	<i>Page</i>
1 Scope	3
2 Referenced Documents	3
3 Definitions	3
4 General Rules	3
5 Fundamentals of Sample Preparation	3
6 Moisture Sample	9
7 Chemical Analysis Sample	9
8 Physical Test Sample	10
9 Identification of Sample	10
APPENDIX A. SCOOPS	11

© Copyright — STANDARDS ASSOCIATION OF AUSTRALIA 1986

Users of standards are reminded that copyright subsists in all SAA publications. No part of this publication may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing of the Standards Association of Australia.

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

for

COPPER, LEAD AND ZINC SULPHIDE CONCENTRATES—SAMPLING

PART 3—PREPARATION OF SAMPLES

1 SCOPE. This standard sets out methods for the preparation of samples of copper, lead and zinc sulphide concentrates for the determination of bulk moisture content, chemical composition and physical properties.

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

- AS 1152 Test Sieves
 AS 2862 Copper, Lead and Zinc Sulphide Concentrates—Sampling,
 AS 2862.1 Sampling from Moving Streams*
 AS 2862.2 Sampling from Stationary Situations*
 AS 2863 Copper, Lead and Zinc Sulphide Concentrates—Determination of Moisture in Bulk Material

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

3.1 Chemical analysis sample—a sample available (without further preparation) for determination of chemical composition.

3.2 Gross sample—a quantity of concentrate consisting of all of the increments or all of the subsamples taken from the lot; also a composite of all of the increments or all of the subsamples after having been reduced in particle size.

3.3 Increment—a quantity of concentrate taken by—
 (a) a single pass of the sampling device in the case of mechanical sampling; or

(b) either a single pass or the combined sum of multiple passes of the sampling implement in the case of manual sampling.

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

3.5 Moisture sample—a sample available (without further preparation) for determination of moisture content.

3.6 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 the material passes.

3.7 Physical testing sample—a sample available (without further preparation) for the determination of physical properties.

3.8 Sampling unit—the discrete units which comprise the lot.

3.9 Subsample—a quantity of concentrate, consisting of a number of increments representing all or part of a sampling unit.

4 GENERAL RULES. All samples from a lot shall be taken in accordance with AS 2862.1 or AS 2862.2.

Moisture samples should be extracted as soon as possible and weighed immediately. If this is not possible, the gross sample or subsample shall be stored in an impervious air-tight container with a minimum of free air space in order to minimize any change of moisture content.

Throughout all the procedures of sample preparation, samples shall be protected from any alteration other than in the case of the chemical analysis samples, particle size reduction and drying.

5 FUNDAMENTALS OF SAMPLE PREPARATION.

5.1 General. Sample preparation involves several distinct operations, which are sometimes preceded by drying. These are as follows:

- (a) Mixing, in order to achieve homogeneity.
- (b) Division, in which the sample mass is decreased by dividing the sample into two or more parts.
- (c) Reduction, to decrease particle size.

The operations referred to in (a) and (b) above are generally considered to constitute one stage of sample preparation.

Stages of sample preparation should be chosen to minimize errors during sample preparation without having to retain too large a mass.

5.2 Sample mixing.

5.2.1 General. Errors in sample division can be reduced by thorough mixing of the sample prior to division. The need for mixing is particularly important when samples from more than one source are combined. Any agglomerates present need first to be broken up as described in Clause 7.2(a).

5.2.2 Methods of mixing. Mixing can be carried out by one of the following methods:

- (a) Passing the sample through a riffle or rotary sample divider 3 times in succession and recombining the portions after each pass.
- (b) Using a mechanical mixer (see Fig. 1).
- (c) Strip mixing. The concentrate is formed into a strip by careful distribution of the concentrate from a shovel. The length/width ratio of the strip shall be not less than 10:1. A complete cross-section of the concentrate strip is taken randomly, and spread out to form a new strip. Successive cross-sections are taken randomly and spread out on top of the preceding cross-section, layer upon layer, until the old strip has been converted into a new strip. The process of taking cross-sections is repeated twice.

* In course of preparation.