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Copper, lead, zinc and nickel concentrates — Sampling of slurries



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AS ISO 11794:2022

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Preface

This Standard was prepared by the Standards Australia Committee MN-005, Lead, Zinc and Nickel Ores and Concentrates, to supersede AS ISO 11794:2015.

The objective of this document is to set out the basic methods for sampling particulate material that is mixed with a liquid, usually water, to form a slurry.

The procedures described in this document apply to sampling of particulate materials that are transported in moving streams as slurries, but not pressurized 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 document.

This document describes procedures that are designed to provide samples representative of the slurry solids and particle-size distribution of the slurry under examination. After draining the slurry sample of fluid 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.

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 stop-and-bell method described in AS 2862.1:2021.

This document is identical with, and has been reproduced from, ISO 11794:2017, *Copper, lead, zinc and nickel concentrates — Sampling of slurries*.

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Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

The terms “normative” and “informative” are used in Standards to define the application of the appendices or annexes to which they apply. A “normative” appendix or annex is an integral part of a Standard, whereas an “informative” appendix or annex is only for information and guidance.

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 183, *Copper, lead, zinc and nickel ores and concentrates*.

This second edition cancels and replaces the 2010 edition (ISO 11794:2010), of which it constitutes a minor revision. The main changes are the deletion of reference ISO 20212, which has not yet been published, and the replacement of “should” with “shall” where the criteria and/or requirements are mandatory.

NOTES

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WARNING — This document may involve hazardous materials, operations and equipment. It is the responsibility of the user of this document to establish appropriate health and safety practices and determine the applicability of any other limitations prior to use.

1 Scope

This document sets out the 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 document. 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 document.

The procedures described in this document apply to sampling of particulate materials that are transported in moving streams as slurries, but not pressurized 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 document.

This document describes procedures that are designed to provide samples representative of the slurry solids and particle-size distribution of the slurry under examination. After draining the slurry sample of fluid 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.

Provided that flow rates are not too high, the reference method against which other sampling procedures are compared is one where an entire stream is diverted into a vessel for a specified time or volume interval. This method corresponds to the stopped-belt method described in ISO 12743.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirement of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 12743, *Copper, lead, zinc and nickel concentrates — Sampling procedures for determination of metal and moisture content*

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

ISO 13292, *Copper, lead, zinc and nickel concentrates — Experimental methods for checking the bias of sampling*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 12743, ISO 12744 and ISO 13292 apply.