



Gold and gold bearing alloys

Part 3: Determination of gold content (greater than 99.5 %)—Gravimetric (fire assay) method

AS 3515.3:2019

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- Geoscience Australia
- International Copper Association Australia
- Jewellers Association of Australia
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Preface

This Standard was prepared by Standards Australia Committee CH-010, Analysis of Metals, to supersede AS 3515.3—2002, *Gold and gold bearing alloys, Part 3: Determination of gold content (greater than 99.5%)—Gravimetric (fire assay) method*.

This objective of this Standard is to set out a gravimetric procedure for the determination of gold content in gold alloys. This method is applicable to gold and gold alloys containing more than 99.5 % gold and < 0.05 % rhodium and < 0.05 % tungsten.

This method is not suitable for alloys containing iridium.

The major changes in this edition are as follows:

- (a) Exclusion of alloys containing iridium in the scope.
- (b) The use of either vacuum tube sampling method or dip sampling as the preferred sampling techniques.
- (c) A warning on appropriate safety protocols for end users of this Standard.
- (d) Editorial amendments and consistency with other Standards in the series.

This Standard is part of a series for AS 3515, as follows:

AS 3515.1, *Gold and gold bearing alloys, Part 1: Determination of gold content (Less than 30 %) — Gravimetric (fire assay) method*

AS 3515.2, *Gold and gold bearing alloys, Part 2: Determination of gold content (30% to 99.5%)—Gravimetric (fire assay) method*

AS 3515.3, *Gold and gold bearing alloys, Part 3: Determination of gold content (greater than 99.5 %) — Gravimetric (fire assay) method* (this Standard)

AS 3515.4, *Gold and gold bearing alloys, Part 4: Determination of gold content (greater than 99.95%)—Inductively coupled plasma—Atomic emission spectrometry*

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

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WARNING — THE USE OF THIS STANDARD MAY INVOLVE HAZARDOUS MATERIALS, OPERATIONS AND EQUIPMENT. THIS STANDARD DOES NOT PURPORT TO ADDRESS ALL OF THE SAFETY PROBLEMS ASSOCIATED WITH ITS USE. IT IS THE RESPONSIBILITY OF THE USER OF THIS STANDARD TO ESTABLISH APPROPRIATE SAFETY AND HEALTH PRACTICES AND DETERMINE THE APPLICABILITY OF REGULATORY LIMITATIONS PRIOR TO USE.

1 Scope

This Standard sets out a gravimetric procedure for the determination of gold content in gold alloys. This method is applicable to gold and gold alloys containing more than 99.5 % gold and < 0.05 % rhodium and < 0.05 % tungsten. This method is not suitable for alloys containing iridium.

NOTE 1 Recommended methods of sampling bullion for use with this Standard are provided in [Appendix A](#).

NOTE 2 This assay is an intricate procedure and therefore should only be carried out by an analyst who has experience in gravimetric fire assay analysis.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document.

NOTE Documents referenced for informative purposes are listed in the Bibliography.

ISO 3696, *Water for analytical laboratory use—Specification and test methods*

3 Definitions

For the purpose of this Standard, the definitions below apply.

3.1

bullion

an alloy of gold and silver with variable amounts of one or more of the base metals

3.2

cornet

an alloy of gold and silver after it has been hammered, annealed and fashioned into a roll, prior to parting

3.3

cupellation

the process by which the precious metals are separated from the lead and other base metals with which they are alloyed. It is also the process whereby the sample, having been wrapped in lead sheet/foil with the necessary additives (i.e. silver and copper), is homogenized in the molten state prior to the separation of the gold and silver

3.4

fine gold

of purity greater than 99.5 % gold

3.5

gold cornet

a cornet that has been parted