AS 5006.2:2019

Australian STANDARD

Silver and silver bearing alloys

Part 2: Determination of silver content (0.1 % to 99.9 %)—Gravimetric (fire assay) method

STANDARDS Australia

AS 5006.2:2019

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Bureau of Steel Manufacturers of Australia
Geoscience Australia
International Copper Association Australia
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Materials Australia
National Association of Testing Authorities Australia

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Preface

This Standard was prepared by Standards Australia Committee CH-010, Analysis of Metals, to supersede AS 5006.2—2002, *Silver and silver bearing alloys, Part 2: Determination of silver content (1% to 99%)—Gravimetric (fire assay) method*.

The objective of this Standard is to set out gravimetric procedures for the determination of silver content in the range 1 % to 99 % in silver and silver bearing alloys with < 2 % nickel, < 0.05 % rhodium, < 0.05 % tungsten, < 1 % platinum and < 3 % palladium.

This Standard is Part 2 of a series comprising:

AS 5006.1, *Silver and silver bearing alloys, Part 1: Determination of silver content (0.1% to 99.9%)—Titrimetric (potentiometric) method*

AS 5006.2, *Silver and silver bearing alloys, Part 2: Determination of silver content (1% to 99%)—Gravimetric (fire assay) method* (this Standard).

The following laboratories participated in the inter-laboratory test program, to provide the data given in Table 1:

Australian Gold Refineries

Golden West

Misima Mines Pty Ltd

Pacific Precious Metals

SGS

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 gravimetric procedures for the determination of silver content in the range 1 % to 99 % in silver and silver bearing alloys with < 2 % nickel, < 0.05 % rhodium, < 0.05 % tungsten, < 1 % platinum and < 3 % palladium.

NOTE 1 If gold, platinum or palladium are present they are retained with the silver. Consequently they need to be quantified and the silver content appropriately adjusted. The gold content can be quantified using AS 3515.1 or AS 3515.2 as appropriate and the platinum and palladium quantified using AS 4119.

NOTE 2 Recommended methods of sampling bullion for use with this Standard are provided in Appendix A.

NOTE 3 The presence of the following elements may cause difficulties in obtaining a homogeneous sample: iron, lead, antimony, nickel or arsenic.

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
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 or copper or both), is homogenized in the molten state prior to the separation of the gold and silver

3.2
laboratory sample
a sample as prepared for sending to the laboratory and intended for inspection or testing

3.3
may
indicates the existence of an option

3.4
prill
the “button” or “bead” of precious metal obtained from the cupellation process