



Silver and silver bearing alloys

Part 1: Determination of silver content (0.1 % to 99.9 %)—Titrimetric (potentiometric) method



AS 5006.1:2019

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- Australian Chamber of Commerce and Industry
- Bureau of Steel Manufacturers of Australia
- Geoscience Australia
- International Copper Association Australia
- Jewellers Association of Australia
- 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 5006.1—2002, *Silver and silver bearing alloys, Part 1: Determination of silver content (0.1% to 99.9%)—Titrimetric (potentiometric) method*.

The objective of this Standard is to set out a titrimetric method for the determination of silver content in silver and silver bearing alloys in the range 0.1 % to 99.9 % silver with < 20 % gold and platinum group metals. If palladium or tungsten are present they need to be complexed. This method is not suitable for alloys containing mercury.

This Standard is Part 1 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* (this Standard)

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

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

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 titrimetric procedure for the determination of silver content in silver and silver bearing alloys in the range 0.1 % to 99.9 % silver with < 20 % gold and platinum group metals. If palladium or tungsten are present they need to be complexed.

This method is not suitable for alloys containing mercury.

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

NOTE 2 The presence of the following elements may cause difficulties in obtaining a homogeneous sample: iron, antimony, arsenic, lead or nickel.

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.

AS 2162.1, *Verification and use of volumetric apparatus, Part 1: General—Volumetric glassware*

AS 2162.2, *Verification and use of volumetric apparatus, Part 2: Guide to the use of piston-operated volumetric apparatus (POVA)*

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

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