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Jewellery and precious metals — One kilo bar — Specifications

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Contents

Page

Foreword.....	iv
Introduction.....	v
1 Scope	1
2 Normative references	1
3 Normative references	1
4 Terms and definitions.....	1
5 Requirements.....	2
5.1 Fineness	2
5.2 Impurities (PROPOSAL TO DISCUSS)	2
5.3 Physical Specification.....	2
5.4 Surface Quality.....	3
5.5 Markings	3
6 Security feature	3
7 Certificate of analysis	4
8 Packaging.....	4
Bibliography	5

Foreword

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This document was prepared by Technical Committee ISO/TC 174, *Jewellery and precious metals*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The 1 kilogram gold bar (also named gold kilobar) is the most manufactured and traded small gold bar. As the premium associated with this product is generally very low, it is popular not only among institutional and private investors, but also among jewellery fabricators and industries.

Unlike 400 troy ounces (approximately 12,5 kg) bars, for which a recognized standard is published by the LBMA (London Bullion Market Association) in its Good Delivery Rules, there is no internationally recognized standard for 1 kilogram gold bars. Each market (including COMEX in New York, SGE in Shanghai, TOCOM in Tokyo...) has its own rules for accepting those bars, which can include specifications for weight tolerance, dimensions, markings and even chemical composition. Hence, a gold kilobar accepted by one exchange may be rejected by another.

The purpose of this document is to propose a set of specifications, which could serve as reference for the exchanges and the industrial markets, and favour the usage of gold kilobars.

Jewellery and precious metals — One kilo bar — Specifications

1 Scope

This document specifies the requirements, test methods, inspection, marking, packaging, transportation, storage, quality certificate and the order (or contract) information of one kilogram gold bars.

This document is applicable to one-kilogram casted gold bars produced for investment markets or industrial (jewellery, electronic) markets.

2 Normative references

3 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. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 11426, *Jewellery — Determination of gold in gold jewellery alloys — Cupellation method (fire assay)*

ISO 15093, *Jewellery and precious metals — Determination of 999 ‰ gold, platinum and palladium — Difference method using ICP-OES*

4 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <http://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

cast bar

bar produced in a mold directly from melted metal, without further metallurgical treatment after solidification

3.2

top surface

one of the two largest surfaces of the bar which is the last part bar to solidify

5 Requirements

5.1 Fineness

The minimum fineness of gold bars is 995 ‰. The following finenesses are acceptable:

- 999,90 ‰;
- 999,00 ‰;
- 995,00 ‰.

Fineness shall be determined by an appropriate analytical method, including – but not limited to – cupellation (ISO 11426 for fineness up to 999,5‰) and difference method using ICP-OES (ISO 15093 for fineness of and above 999‰)

Fineness shall be determined with 5 significant numbers, with no rounding up allowed.

EXAMPLE 999,89‰ shall be marked as 999,50‰

5.2 Impurities (PROPOSAL TO DISCUSS)

For bars with a fineness of 999,90 ‰ and higher, two specifications are available for 1 kilogram gold bars, depending on the impurity levels.

	ISO 24018-9950	ISO 24018-9990	ISO 24018-9999	ISO 24018-9999+
Au	≥ 995,00 ‰	≥ 999,00 ‰	≥ 999,90 ‰	≥ 999,90 ‰
Ag				≤ 50 mg/kg
Pd				≤ 50 mg/kg
As				≤ 30 mg/kg
Bi				≤ 20 mg/kg
Cu				≤ 20 mg/kg
Cr				≤ 3 mg/kg
Fe				≤ 20 mg/kg
Mg				≤ 30 mg/kg
Mn				≤ 3 mg/kg
Ni				≤ 3 mg/kg
Pb				≤ 10 mg/kg
Sb				≤ 10 mg/kg
Si				≤ 50 mg/kg
Sn				≤ 10 mg/kg

5.3 Physical Specification

The gold bar shall have a minimum weight of 1.00000 kg, and a maximum weight of 1.00010 kg. No negative tolerance is allowed.

The gold bar shall have a rectangular parallelepiped shape (formally, as it is a cast ingot, it could be a truncated pyramid to allow for easier extraction from the mold), with the following dimensions:

- Length: 100 mm to 120 mm;

- Width: 47 mm to 56 mm,
- Thickness: 7 mm to 13 mm.

5.4 Surface Quality

Bars must have flat and smooth surfaces (a small shrinkage on the top surface is accepted), and be free from cavities, holes, and significant layering. Edges must not be sharp and pose a handling hazard.

5.5 Markings

All markings shall be only on the top surface. Markings shall be made using pressure stamping, dot matrix or laser markings (or a combination of those techniques). Markings shall be persistent and not alterable during handling and storage.

The following minimum information shall be marked:

- a) Name or logo of the fabricator;
- b) "Gold" or "Au" to indicate the nature of the metal;
- c) Weight in kilogram or gram, including the weighing unit;

EXAMPLE "1 kg", "1.000 kg", "1000 g"

- d) Fineness in per thousand (‰) or percent (%), with or without the unit, with 3 or 4 significant figures

EXAMPLE "999.9‰", "99.90%", "995"

- e) Unique serial number;

The following information may also be added:

- a) Assay mark or hallmark;
- b) Manufacturing year;
- c) Reference to this standard.

6 Security feature

The bar may bear on any side a security feature to guarantee its integrity and prevent counterfeiting. If this feature adds weight to the bar, this must be disclosed in the certificate of analysis. The total weight of the bar bearing the security feature shall not exceed the weight specification in 5.3.

7 Certificate of analysis

A certificate of analysis shall accompany each bar, with the following information stated:

- a) Name or logo of the fabricator;
- b) "Gold" or "Au" to indicate the nature of the metal;
- c) Weight;
- d) Fineness;
- e) Unique serial number (same as the one stamped on the bar);
- f) Date of manufacturing;
- g) Reference to this standard;
- g) Signature.

8 Packaging

It is recommended to pack 25 bars of 1 kg bars in one case. During transportation and storage, the bars shall not be damaged or contaminated.

Bibliography