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Jewellery — Gold alloy coatings

Joallerie — Revêtements d'alliages d'or

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Reference number
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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 10713 was prepared by Technical Committee ISO/TC 174, *Jewellery*.

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Jewellery — Gold alloy coatings

1 Scope

This International Standard specifies the coating thickness requirements and the gold fineness of the coating. It also defines current terms concerning gold alloy coatings.

It is not applicable to watch bracelets if they are permanently attached to the case.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 3160-2:1982, *Watch cases and accessories — Gold alloy coverings — Part 2: Determination of fineness, thickness and corrosion resistance.*

ISO 3497:1990, *Metallic coatings — Measurement of coating thickness — X-ray spectrometric methods.*

ISO 3543:1981, *Metallic and non-metallic coatings — Measurement of thickness — Beta backscatter method.*

ISO 9220:1988, *Metallic coatings — Measurement of coating thickness — Scanning electron microscope method.*

3 Coating thickness requirements and relevant terms

Jewellery with a gold alloy coating may be designated by the terms given in table 1 only if the thickness of the coating is in accordance with the values indicated in this table.

NOTE 1 This coating requirement may also be defined by the fine gold content related to the total mass of the article. The fine gold content defined in this way is customarily indicated in the jewellery trade in "millièrme". In this case, the conformity of the coating with the requirements has to be calculated using the mass of the article, the value expressed in millièrme, the surface area and the density of fine gold. However, to conform with this International Standard, the coating, defined in millièrme, has to be at least equivalent to the thickness indicated in table 1.

4 Measurement of coating thickness

The thickness measurement is not related to any particular part of a plated article, but to the overall quantity of fine gold necessary to produce the required thickness over the total surface area of the article.

4.1 Basic method (destructive method)

For arbitration, the dissolution method and chemical analysis shall be used. The average thickness has to be calculated using the fine gold content, the density of fine gold and the surface area.

For details of the dissolution method and chemical analysis see ISO 3160-2.

4.2 Secondary methods (non-destructive methods)

On agreement between the manufacturer and purchaser, the following methods may be used:

- beta backscatter method according to ISO 3543;
- X-ray spectrometric method according to ISO 3497;
- scanning electron microscope method according to ISO 9220.

NOTE 2 These non-destructive methods are recommended for manufacturing control and continuous quality control. However, only local thicknesses can be determined. Therefore, the number of measurements and the position

of the measurement points have to be agreed upon by the manufacturer and purchaser.

Other test methods may be used, if it can be demonstrated that they are as good as, or better than, the methods described in this International Standard.

5 Marking

5.1 Articles in accordance with the requirements and designated by the terms given in table 1 may be marked as

L: for coatings applied by a mechanical process;

P: for coatings applied by any other process.

The relevant category, according to the letter given in table 1 may be added.

EXAMPLE

P — B: for coatings with a minimum thickness of 3 µm, applied by a galvanic process, with a fineness of at least 585/1 000.

5.2 If there is any marking on the article, it shall comprise the maker's mark or the mark of responsibility.

5.3 It is not permitted to mark or stamp articles which are only gilt.

5.4 The fine gold content or the values in parts per thousand of any coating may not be marked on any article.

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Table 1 — Terms, manufacturing process and coating requirements

English	Terms		Manufacturing process	Category	Coating		Fineness min.
	French	German			Thickness (min.)	Gold alloy	
Rolled gold	Plaqué or (laminé) Double or (laminé) iTech STANDARD PREVIEW (standards.itech.ai)	Golddouble Walzgolddouble ISO 10713:1992	Mechanical	A	—	5 µm min.	375/1 000
				B	—	3 µm min.	
				C	0,5 µm min.	—	
Gold plated	Plaqué or Double or	Goldplattiert	Any other	A	—	5 µm min.	585/1 000
				B	—	3 µm min.	
				C	0,5 µm min.	—	
Gilt	Doré	Vergoldet	Any other	—	< 0,5 µm	—	585/1 000

1) The quality of this coating is defined in fine gold, even though the coating consists of gold alloy. Therefore, the actual thickness of the applied gold alloy coating will vary according to the alloy used as follows:

Gold alloy 375/1 000 = 2,3 µm
 Gold alloy 417/1 000 = 1,9 µm
 Gold alloy 585/1 000 = 1,2 µm
 Gold alloy 667/1 000 = 1,0 µm
 Gold alloy 750/1 000 = 0,835 µm
 Gold alloy 1 000/1 000 = 0,5 µm

The actual thicknesses of the gold alloy coatings indicated above correspond to a thickness of 0,5 µm of fine gold.

NOTE — The values of category C, referring to fine gold, are supplied directly by the test method recommended in 4.2.

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Descriptors: jewellery, gold alloys, coatings, specifications, fineness, thickness, thickness measurement, marking.

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