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Designation: ~~B562 – 95 (Reapproved 2012)~~ B562 – 95 (Reapproved 2017)

Standard Specification for Refined Gold[1]

This standard is issued under the fixed designation B562; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification covers refined gold in cast bar form (Note 1).

1.1.1 *Grade 99.5*—Gold having a minimum fineness of 995.

1.1.2 *Grade 99.95*—Gold having a minimum fineness of 999.5.

1.1.3 *Grade 99.99*—Gold having a minimum fineness of 999.9.

1.1.4 *Grade 99.995*—Gold having a minimum fineness of 999.95.

NOTE 1—Other forms of unfabricated gold of commerce are not to be excluded under this specification.

1.2 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.

1.3 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to become familiar with all hazards including those identified in the appropriate ~~Material~~ Safety Data Sheet ~~(MSDS)~~(SDS) for this product/material as provided by the manufacturer, to establish appropriate ~~safety~~ safety, health, and ~~health~~environmental practices, and determine the applicability of regulatory limitations prior to use.*

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

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2. Referenced Documents

2.1 *ASTM Standards:*[2]

E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

E1446 Test Method for Chemical Analysis of Refined Gold by Direct Current Plasma Atomic Emission Spectrometry

ASTM B562-95(2017) https://standards.iteh.ai/catalog/standards/sist/798a1305-d77d-40f6-8215-f7417791bfb5/astm-b562-952017

3. Materials and Manufacture

3.1 The metal may be produced by any process that yields a product capable of meeting the requirements of this specification. The purchaser, upon request, shall be informed of the refining process used.

3.2 The bars shall be of a quality generally acceptable to the trade.

4. Chemical Composition

4.1 The refined gold shall conform to the chemical composition prescribed in Table 1.

NOTE 2—For purposes of determining conformance with this specification, an observed value obtained from analysis shall be rounded to the nearest unit in the last right-hand place of figures used in expressing the limiting value, in accordance with the rounding method of Practice E29.

5. Sampling

5.1 On agreement between the manufacturer and the purchaser, a sample may be taken from the melt before pouring (Note 3). The sample shall be in the form of shot or pins (Note 4 and Note 5).

NOTE 3—A single melt or bar(s) cast from a single melt shall constitute a lot for sampling.

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[1] This specification is under the jurisdiction of ASTM Committee B02 on Nonferrous Metals and Alloys and is the direct responsibility of Subcommittee B02.05 on Precious Metals and Electrical Contact Materials.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the ~~standard's~~standard's Document Summary page on the ASTM website.

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TABLE 1 Chemical Requirements

Element[A]	Composition,%			
	Grade 99.5	Grade 99.95	Grade 99.99	Grade 99.995
Gold, min	99.5	...	...	...
Gold, min (by difference)	...	99.95	99.99	99.995
Silver + copper, max	...	0.04	...	...
Silver, max	...	0.035	0.009	0.001
Copper, max	...	0.02	0.005	0.001
Palladium, max	...	0.02	0.005	0.001
Iron, max	...	0.005	0.002	0.001
Lead, max	...	0.005	0.002	0.001
Silicon, max	...	...	0.005	0.001
Magnesium, max	...	...	0.003	0.001
Arsenic, max	...	...	0.003	...
Bismuth, max	...	...	0.002	0.001
Tin, max	...	...	0.001	0.001
Chromium, max	...	...	0.0003	0.0003
Nickel, max	...	...	0.0003	...
Manganese, max	...	...	0.0003	0.0003

[A] By agreement between manufacturer and purchaser analyses may be required and limits established for elements not specified in this table.

NOTE 4—Pins of ⅜ in. (9.5 mm) or other suitable diameter may be cast into graphite molds or drawn into evacuated glass tubes. In some cases it may be necessary to draw the glass tube pins through 60-grit emery paper before acid leaching to remove adhering glass particles.

NOTE 5—In order to avoid surface contamination, the sample, irrespective of its nature, is to be leached in hot 1 + 1 HCl for 5 min, washed in water, rinsed twice in alcohol or acetone, and dried in a muffle at 110°C before portions are taken for analysis.

5.2 On agreement between manufacturer and purchaser an alternative sampling procedure may be used.

5.3 The amount of sample taken shall be sufficient to supply three portions for analysis; the mass of each portion shall be sufficient to permit the determination of its composition as set forth in Table 1.

5.4 After mixing thoroughly, the sample shall be divided into three parts, each placed in a package and sealed; one for the manufacturer, one for the purchaser, and one for the umpire.

5.5 All tools required are to be reserved exclusively for this work.

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6. Method of Analysis

6.1 Chemical composition of the materials set forth in this specification shall be determined, in case of disagreement, in accordance with Test Method E1446. The selection of test methods for the determination of elements not covered by that test method shall be a matter of agreement between the manufacturer and the purchaser.

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6.2 Chemical composition of materials required for Grade 99.5 refined gold shall be determined by a test method similar to the fire assay test method listed in the appendix.

7. Rejection and Rehearing

7.1 *Rejection:*

7.1.1 Claims to be considered shall be made to the manufacturer in writing within 30 days of receipt of the material at the purchaser's plant, and the results of tests made by the purchaser shall accompany such claims. The manufacturer shall be given one week from the date of receipt of the complaint to investigate his records, and shall then agree either to satisfy the claim or to submit samples to an umpire. No claim shall be considered unless a portion of the original gold bars can be shown to the representative of the manufacturer.

7.1.2 Where the gold satisfies the requirements of this specification, it shall not be condemned for defects in the products in which it is used.

7.2 *Investigation of Claims*—In a question of chemical composition, a sample shall be drawn by representatives of both parties in accordance with Section 5. The sample shall be suitably separated into three parts, each of which shall be placed in a sealed package, one for the manufacturer, one for the purchaser, and one for an umpire, if necessary. The manufacturer and the purchaser shall each make an analysis, and if the results do not establish or dismiss the claim to the satisfaction of both parties, the third sample shall be submitted to a mutually agreeable umpire, who shall determine the question of fact, and whose determination shall be final.

8. Settlement of Claims

8.1 The expenses of the manufacturer's representative and of the umpire shall be paid by the loser or divided in proportion to the concession made in case of compromise. In the case of rejection being established, the damages shall be limited to the payment of transportation charges both ways by the manufacturer for substitution of an equivalent weight of gold conforming to this specification.