



## Standard Specification for Refined Palladium<sup>1</sup>

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<sup>ε1</sup> NOTE—UNS number was added in June 1999.

### 1. Scope

1.1 This specification covers refined palladium as sponge, cast bar, and wrought forms (Note 1) in one grade as follows:

1.1.1 *Grade 99.95 (UNS PO3995)*—Palladium having a purity of 99.95 %.

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

NOTE 2—For the 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 E 29.

1.2 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

### 2. Referenced Documents

2.1 *ASTM Standards*:

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications<sup>2</sup>

### 3. Materials and Manufacture

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

3.2 The surfaces of bars and wrought forms shall exhibit quality generally acceptable to the trade.

### 4. Chemical Composition

4.1 The refined palladium shall conform to the requirements as to the chemical composition prescribed in Table 1.

<sup>1</sup> This specification is under the jurisdiction of ASTM Committee B-2 on Nonferrous Metals and Alloys and is the direct responsibility of Subcommittee B02.05 on Precious Metals.

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 14.02.

TABLE 1 Chemical Requirements

Element <sup>A</sup>	Composition, %
	Grade 99.95 (UNS PO3995)
Palladium, min (by difference)	99.95
Platinum, max	...
Rhodium, max	...
Ruthenium, max	...
Iridium, max	...
Total platinum group metals other than palladium, max	0.03
Gold, max	0.01
Silver, max	0.01
Lead, max	0.005
Tin, max	0.005
Zinc, max	0.0025
Iron, max	0.005
Copper, max	0.005
Silicon, max	0.005
Magnesium, max	0.005
Calcium, max	0.005
Aluminum, max	0.005
Nickel, max	0.005
Chromium, max	0.001
Cobalt, max	0.001
Manganese, max	0.001
Antimony, max	0.002

<sup>A</sup> By agreement between manufacturer and purchaser analyses may be required and limits established for elements or compounds not specified in this table.

### 5. Sampling

5.1 The value of this material is such that special attention must be paid to sampling procedures. The purchaser and manufacturer shall agree upon the sampling procedures used.

5.2 *Lot Size*—Sampling lots shall consist of the following:

5.2.1 *Sponge*—A single refining lot, and

5.2.2 *Other Forms*—A single melt or primary consolidation.

### 6. Method of Analysis

6.1 Pending the development of standard ASTM methods of chemical or spectrographic analysis, or both, the methods to be used shall be a matter of agreement between the manufacturer and the purchaser.

## 7. Rejection and Rehearing

7.1 Material that fails to conform to the requirements of this specification may be rejected. Rejection should be reported to the producer or supplier promptly and in writing. In case of dissatisfaction with the results of the test, the producer or supplier may make claim for rehearing.

7.1.1 If the palladium satisfies the requirements of this specification, it shall not be rejected for defects in the products in which it is used.

7.2 *Investigation of Claims*—In a question of chemical composition, a new sample shall be drawn by representatives of both parties in accordance with Section 5. The properly

mixed and quartered sample shall be divided 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.

## 8. Product Marking

8.1 The material shall be legibly identified by mark, label, or tag with the following information: palladium (Pd) Grade\_\_\_\_, lot or melt number, and weight to the nearest 0.001 troy oz (0.03 g).

## 9. Keywords

9.1 palladium; refined palladium; sponge

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