



Designation: B684/B684M – 16

Standard Specification for Platinum-Iridium Electrical Contact Materials¹

This standard is issued under the fixed designation B684/B684M; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope*

1.1 This specification covers an 85 % platinum—15 % iridium alloy, and a 90 % platinum—10 % iridium alloy, in the form of rod, wire, strip, and sheet material for electrical contacts.

1.2 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the 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 Safety Data Sheet (SDS) for this product/material as provided by the manufacturer, to establish appropriate safety and health practices, and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

- 2.1 *ASTM Standards:*²
- B277 Test Method for Hardness of Electrical Contact Materials
 - B476 Specification for General Requirements for Wrought Precious Metal Electrical Contact Materials
 - B542 Terminology Relating to Electrical Contacts and Their Use
 - E8/E8M Test Methods for Tension Testing of Metallic Materials
 - E384 Test Method for Microindentation Hardness of Materials

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 Document Summary page on the ASTM website.

3. Terminology

3.1 For definitions of terms related to electrical contact materials, refer to Terminology B542.

4. General Requirements

4.1 The requirements of Specification B476 shall apply to all materials produced to this specification.

4.2 In addition, when a section with a title identical to that referenced in 4.1 appears in this specification, it contains additional requirements which supplement those appearing in Specification B476.

5. Ordering Information

5.1 Include the following information when placing orders for product under this specification, as applicable:

- 5.1.1 ASTM designation and year of issue,
- 5.1.2 Grade of material (see Table 1),
- 5.1.3 Temper (annealed or work hardened, see Table 2 and Table 3),
- 5.1.4 Form (rod, wire, sheet, or strip),
- 5.1.5 Dimensions and tolerances,
- 5.1.6 Quantity, total weight or total length or number of pieces of each size,
- 5.1.7 Heat identification or traceability details, if required,
- 5.1.8 Certification and/or Test Report, if required.

6. Materials and Manufacture

6.1 Raw materials shall be of such quality and purity that the finished product will have the properties and characteristics prescribed in this specification.

6.2 The material shall be finished by such operations (cold working, annealing, turning, grinding, or pickling) as are required to produce the prescribed properties.

7. Chemical Composition

7.1 Material produced under the specification shall meet the requirements of chemical composition prescribed in Table 1.

7.2 By agreement between purchaser and manufacturer, analysis may be required and limits established for elements or compounds not specified in the table of chemical composition.

*A Summary of Changes section appears at the end of this standard