Designation: B693 – 17

Standard Specification for Silver-Nickel Electrical Contact Materials[1]

This standard is issued under the fixed designation B693; 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 electrical contact components made from silver nickel by powder metallurgical procedures.

1.2 This specification covers compositions within the silver-nickel system normally specified by users of electrical contacts.

1.3 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4 *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, health, and environmental practices, and determine the applicability of regulatory limitations prior to use.*

1.5 *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.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

B328 Test Method for Density, Oil Content, and Interconnected Porosity of Sintered Metal Structural Parts and Oil-Impregnated Bearings (Withdrawn 2009)[3]

E18 Test Methods for Rockwell Hardness of Metallic Materials

E384 Test Method for Microindentation Hardness of Materials

B476 Specification for General Requirements for Wrought Precious Metal Electrical Contact Materials

3. Ordering Information

3.1 Orders for this material under this specification shall include the following information.

3.1.1 Dimensions—thickness, width, length, diameter, coil size or other pertinent sizes (see Section 6).

3.1.2 Chemical composition and mechanical properties (see reference table in Appendix X1).

3.1.3 Physical properties (see Section 5 and reference table in Appendix X1).

3.1.4 Certification (see Section 12).

3.1.5 Other features as agreed upon between the seller and the user.

4. Alloy Composition and Impurities

4.1 The alloys (material) shall conform to composition and impurity limits as agreed upon between the manufacturer and user.

4.2 The chemical analysis shall be made in accordance with the methods described in the newest edition of *Annual Book of ASTM Standards*, Vol 03.05 and 03.06, or by any other approved method agreed upon between manufacturer and purchaser.

5. Physical and Mechanical Requirements

5.1 The manufacturer and purchaser shall agree on qualification tests for determination of physical and mechanical properties.

5.2 The tests shall be performed on production parts, wherever practical, or applicable. (Small size contacts do not lend themselves to accurate conductivity measurement.)

5.3 The tests shall be determined after consideration of the function of the part.

5.4 The typical properties of the most common types of silver-nickel electrical contact materials are given in Table X1.1 of Appendix X1.

[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] The last approved version of this historical standard is referenced on www.astm.org.