



Standard Specification for Silver-Nickel Electrical Contact Materials ¹

This standard is issued under the fixed designation B 693; 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.

^{ε1} NOTE—Section 14 was added editorially in May 1996.

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 *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 establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

1.4 It is the responsibility of the user to become familiar with all hazards including those identified in the appropriate Material Safety Data Sheet for this product/material as provided by the manufacturer.

2. Referenced Documents

2.1 *ASTM Standards:*

B 328 Test Method for Density, Oil Content, and Interconnected Porosity of Sintered Metal Structural Parts and Oil-Impregnated Bearings ²

E 18 Test Methods for Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials ³

E 384 Test Method for Microhardness of Materials ³

3. Ordering Information

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

3.1.1 Dimensions (see Section 6).

3.1.2 Chemical composition (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 13).

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

4. Chemical Composition

4.1 The material shall conform to composition 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 Requirements

5.1 The manufacturer and purchaser shall agree on qualification tests for determination of physical 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 the appendix.

6. Dimensions, Mass, and Permissible Variations

6.1 Permissible variations in dimensions shall be within the limits specified on drawings describing the contacts and accompanying the order, or shall be within the limits specified in the purchase order.

7. Workmanship, Finish, and Appearance

7.1 The parts shall be free of defects in material or processing, which would seriously affect their performance.

8. Sampling

8.1 *Lot*—Unless otherwise specified, a lot shall consist of parts of the same form, and dimensions, made of powders of the same particle size range and composition, processed under the same conditions, and submitted for inspection at one time.

9. Number of Tests and Retests

9.1 *Chemical Analysis*—The manufacturer and purchaser shall agree on a representative number of specimens for chemical analysis. A representative sample of chips may be obtained by milling, drilling, or crushing with dry tools, (without lubrication). In order to obtain free chips, the parts selected for test shall have the oil extracted in accordance with Test Method B 328, if necessary.

¹ This specification is under the jurisdiction of ASTM Committee B-4 on Materials for Thermostats, Electrical Heating and Resistance, Contacts and Connectors and is the direct responsibility of Subcommittee B04.02 on Electrical Contact Materials.

Current edition approved Aug. 15, 1991. Published November 1991. Originally published as B693 – 81. Last previous edition B693 – 87.

² *Annual Book of ASTM Standards*, Vol 02.05.

³ *Annual Book of ASTM Standards*, Vol 03.01.