



AEROSPACE MATERIAL SPECIFICATION

AMS4771™**REV. J**

Issued	1958-04
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Superseding AMS4771H

Silver Alloy, Brazing Filler Metal
50Ag - 16Cd - 15.5Zn - 15.5Cu - 3.0Ni
1170 to 1270 °F (632 to 688 °C) Solidus-Liquidus Range
UNS P07501

RATIONALE

AMS4771J stabilizes this document because it represents mature technology that is not expected to change and thus no further revisions are anticipated.

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AMS4771J has been declared "Stabilized" by AMS D Nonferrous Alloys Committee. This document will no longer be updated and may no longer represent standard industry practice. This document was stabilized because it represents mature technology that is not expected to change and thus no further revisions are anticipated. Previously this document was reaffirmed. The last technical update of this document occurred in April, 1999. Users of this document should refer to the cognizant engineering organization for disposition of any issues with reports/certifications to this specification, including exceptions listed on the certification. NOTE: In many cases, the purchaser may represent a sub tier supplier and not the cognizant engineering organization.

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Documents

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1. SCOPE:

1.1 Form:

This specification covers a silver alloy in the form of wire, rod, sheet, strip, foil, pig, powder, shot, and chips and a viscous mixture (paste) of powder in a suitable binder.

1.2 Application:

This material has been used typically for joining ferrous metals, including austenitic steels and alloys, where high joint strength up to 400 °F (204 °C) is required, and for joining nonferrous metals except those having a base of titanium, aluminum or magnesium, but usage is not limited to such applications.

1.2.1 The nickel content helps to minimize crevice corrosion in corrosion resistant steels.

1.3 WARNING:

Numerous scientific studies have determined that cadmium presents a health hazard to persons who are exposed to it.

1.4 Safety - Hazardous Materials:

While the materials, methods, applications, and processes described or referenced in this specification may involve the use of hazardous materials, this specification does not address the hazards which may be involved in such use. It is the sole responsibility of the user to ensure familiarity with the safe and proper use of any hazardous materials and to take necessary precautionary measures to ensure the health and safety of all personnel involved.

2. APPLICABLE DOCUMENTS:

The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order.

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

AMS 2222	Tolerances, Copper and Copper Alloy Sheet, Strip, and Plate
MAM 2222	Tolerances, Metric, Copper and Copper Alloy Sheet, Strip, and Plate
AMS 2224	Tolerances, Copper and Copper Alloy Wire
MAM 2224	Tolerances, Metric, Copper and Copper Alloy Wire

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM B 214	Sieve Analysis of Granular Metal Powders
ASTM E 56-90	Chemical Analysis of Silver Brazing Alloys (Discontinued - See 8.6)
ASTM E 1473	Chemical Analysis of Nickel, Cobalt and High Temperature Alloys

2.3 AWS Publications:

Available from American Welding Society, P.O. Box 351040, Miami, FL 33135-1040.

ANS Z49.1	Safety in Welding and Cutting
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3. TECHNICAL REQUIREMENTS:

3.1 Composition:

Shall conform to the percentages by weight shown in Table 1. Methods for analysis may be by spectrochemical methods or other methods acceptable to purchaser, but in case of dispute, the referee methods shall be ASTM E 56-90 and ASTM E 1473 as applicable (See 8.6).

TABLE 1 - Composition

Element	min	max
Silver	49.0	51.0
Cadmium	15.0	17.0
Zinc	13.5	17.5
Copper	14.5	16.5
Nickel	2.5	3.5
Other Elements, total (3.1.1)	-	0.15

3.1.1 Determination not required for routine acceptance.

3.1.2 The requirements of 3.1 apply to paste after removal of the binder.

3.2 Condition:

Preforms; as fabricated unless otherwise specified. Other products shall be supplied in the following condition:

3.2.1 Wire: Bright and clean. Annealed temper, unless otherwise specified.

3.2.2 Rod: As-fabricated temper, and cleaned.

3.2.3 Sheet, Strip, and Foil: Cold rolled, in hard temper (See 8.4).

3.2.4 Pig, Powder, Shot, and Chips: As fabricated.

3.2.5 Paste: Paste not containing flux (3.2.5.1) shall be supplied unless paste containing flux (3.2.5.2) is specified.

3.2.5.1 Paste Without Flux: Shall consist of 84 to 90% by weight powder in a suitable binder, unless otherwise specified by purchaser.

3.2.5.2 Paste Containing Flux: Shall consist of 55 to 80% by weight powder in a suitable binder and flux combination, unless otherwise specified by purchaser.

3.3 Properties:

Filler metal shall conform to the following requirements:

3.3.1 Color: Shall be yellow-white.

3.3.2 Flatness: When unrolled, strip and foil shall lie flat with no undue tendency to recoil.

3.3.3 Paste:

3.3.3.1 Paste shall have a shelf life of not less than six months from date of manufacture; not more than thorough mixing shall be required to restore paste for use during that time.

3.3.3.2 Paste without flux shall leave no adherent residue when heated in a protective atmosphere to 1000 °F (538 °C) or higher.