



AEROSPACE MATERIAL SPECIFICATION

AMS4776™**REV. K**

Issued	1956-07
Reaffirmed	2000-08
Revised	2023-10

Superseding AMS4776J

Nickel Alloy, Brazing Filler Metal
73Ni - 4.5Si - 14Cr - 3.1B - 4.5Fe (Low Carbon)
1790 °F (977 °C) Solidus to 1970 °F (1077 °C) Liquidus Range
(Composition similar to UNS N99610)

RATIONALE

AMS4776K is the result of a Five-Year Review and update of the specification. The revision updates the prohibition on unauthorized exceptions to the specification (see 8.6).

1. SCOPE

1.1 Form

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

1.2 Application

This filler metal has been used typically for joining corrosion- and heat-resistant steels and alloys requiring corrosion- and oxidation-resistant joints with good strength at elevated temperatures, but usage is not limited to such applications. Also may be used as a corrosion- and oxidation-resistant hard coating.

2. APPLICABLE DOCUMENTS

The issue of the following documents in effect on the date of the purchase order forms a part of this specification to the extent specified herein. The supplier may work to a subsequent revision of a document unless a specific document issue is specified. When the referenced document has been cancelled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), or www.sae.org.

AS7766 Terms Used in Aerospace Metals Specifications

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Full document details: SAE AMS4776K

For more information on this standard, visit
<https://www.sae.org/standards/content/AMS4776K>

Documents
Document Sharing Hub

2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM E18 Rockwell Hardness of Metallic Materials

ASTM E140 Hardness Conversion Tables for Metals Relationship Among Brinell Hardness, Vickers Hardness, Rockwell Hardness, Superficial Hardness, Knoop Hardness, Scleroscope Hardness, and Leeb Hardness

2.3 AWS Publications

Available from American Welding Society, 8669 NW 36 Street, #130, Miami, FL 33166-6672, Tel: 1-800-443-9353 or 305-443-9353, www.aws.org.

AWS A5.01M/A5.01 Welding and Brazing Consumables - Procurement of Filler Metals and Fluxes

AWS A5.8M/A5.8 Specification for Filler Metals for Brazing and Braze Welding

2.4 Definitions

Terms used in AMS are defined in AS7766.

3. TECHNICAL REQUIREMENTS

3.1 Product shall meet the requirements of AWS A5.8M/A5.8 BNi-1a and the following:

3.1.1 Determination not required for routine acceptance.

3.2 Condition

The product shall be supplied in the following condition:

3.2.1 Wire and Strip

Powder bonded in a suitable binder.

3.2.2 Rod

As cast, with fins and projections removed.

3.2.3 Foil and Powder

As fabricated.

3.2.4 Paste

Shall consist of 84 to 90% by weight powder in a suitable binder and, unless otherwise ordered, shall not contain flux.

3.3 Properties

Filler metal shall conform to the following requirements:

3.3.1 Wire and Strip

3.3.1.1 Burn-Off of Binder

Organic binder used for bonding powder to form wire and strip shall burn off, leaving no adherent residue, when the product is heated to a temperature of 1000 °F (538 °C) in an inert or reducing atmosphere, or vacuum (10⁻³ torr or better).