



AEROSPACE MATERIAL SPECIFICATION

AMS4778™**REV. L**Issued 1955-08
Revised 2019-01

Superseding AMS4778K

Nickel Alloy, Brazing Filler Metal
92Ni - 4.5Si - 3.1B
1800 to 1900 °F Solidus-Liquidus Range
(Composition similar to UNS N99630)

RATIONALE

AMS4778L incorporates industry standard requirements of AWS A5.8, prohibits unauthorized exceptions (3.6), revises properties (3.3.1.1, 3.3.2.2), reports (4.4.1), sampling and testing (4.3.2), and identification (5.1.2.2), and results from a Five-Year Review and update of this specification.

1. SCOPE

1.1 Form

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

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), www.sae.org.

ARP1917 Clarification of Terms Used in Aerospace Metals Specifications

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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 B214 Sieve Analysis of Metal Powders

ASTM D638 Tensile Properties of Plastics

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

ASTM E354 Chemical Analysis of High Temperature, Electrical, Magnetic, and Other Similar Iron, Nickel, and Cobalt Alloys

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 Consumables - Procurement of Filler Metals and Fluxes

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

3. TECHNICAL REQUIREMENTS

3.1 Product shall comply with the requirements of AWS A5.8 BNi-3 and the following:

3.1.1 Iron to 1.50% by weight maximum is permissible in strip and foil products (tape form).

3.2 Condition

The product shall be supplied in the following condition:

3.2.1 Wire, Tape 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.