

AEROSPACE MATERIAL SPECIFICATION

SAE

AMS 4780C

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Superseding AMS 4780B

Submitted for recognition as an American National Standard

BRAZING FILLER METAL, MANGANESE

66Mn - 16Ni - 16Co - 0.80B

1770° - 1875°F (966° - 1024°C) Solidus-Liquidus Range

UNS M26800

1. SCOPE:

1.1 Form: This specification covers a manganese alloy in the form of powder and a viscous mixture (paste) of the powder in a suitable binder.

1.2 Application: Primarily for joining corrosion and heat resistant steels and alloys where good ductility and moderate heat resistance are required.

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The applicable issue of referenced publications shall be the issue in effect on the date of the purchase order.

2.1 ASTM Publications: Available from ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.

ASTM B 214 - Sieve Analysis of Granular Metal Powders

ASTM E 354 - Chemical Analysis of High-Temperature, Electrical, Magnetic, and Other Similar Iron, Nickel, and Cobalt Alloys

2.2 U.S. Government Publications: Available from Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

2.2.1 Military Standards:

MIL-STD-2073-1 - DOD Materiel, Procedures for Development and Application of Packaging Requirements

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3. TECHNICAL REQUIREMENTS:

- 3.1 Composition: Shall conform to the following percentages by weight, determined by wet chemical methods in accordance with ASTM E 354, by spectrochemical methods, or by other analytical methods acceptable to purchaser:

	min	max
Carbon	--	0.06
Silicon	--	1.00
Nickel	14.00 -	18.00
Cobalt	14.00 -	18.00
Boron	0.50 -	1.10
Other Elements, each (3.1.1)	--	0.10
Other Elements, total (3.1.1)	--	1.00
Manganese	remainder	

- 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: The product shall be supplied in the following condition:

- 3.2.1 Powder: As fabricated.

- 3.2.2 Paste: Shall consist of 84 - 90% by weight powder in a suitable binder and, unless otherwise agreed upon by purchaser and vendor, shall not contain flux.

3.3 Properties of Paste:

- 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.

- 3.3.2 Paste shall leave no adherent residue when heated in a protective atmosphere to 1000°F (538°C) or higher.

- 3.4 Quality: The product, as received by purchaser, shall be uniform in color, quality, and condition and free from foreign materials and from imperfections detrimental to its working qualities.

3.5 Sizes and Tolerances:

- 3.5.1 Powder: Shall be supplied in accordance with the following limits on particle size distribution unless some other distribution is specified. Tests shall be in accordance with ASTM B 214.

Mesh Designation

U.S. Standard Sieve

140F mesh

On a No. 100 sieve - 0.5% maximum
On a No. 140 sieve - 10% maximum
Through a No. 325 sieve - 55% maximum

4. QUALITY ASSURANCE PROVISIONS:

- 4.1 Responsibility for Inspection: The vendor of the product shall supply all samples for vendor's tests and shall be responsible for performing all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the product conforms to the requirements of this specification.
- 4.2 Classification of Tests: Tests for all technical requirements are acceptance tests and shall be performed on each lot.
- 4.3 Sampling and Testing: Shall be in accordance with the following; a lot of powder shall be a uniform blend of powder produced from one or more furnace charges, each meeting the requirements of 3.1, and presented for vendor's inspection at one time; a lot of paste shall be that paste produced from a single lot of powder combined with binder from the same manufacturing batch and presented for vendor's inspection at one time.
- 4.3.1 Composition: One sample from each lot.
- 4.3.2 Other Technical Requirements: As agreed upon by purchaser and vendor.
- 4.4 Reports: The vendor of the product shall furnish with each shipment a report showing the results of tests on each lot to determine conformance to the composition requirements and stating that the product conforms to the other technical requirements. This report shall include the purchase order number, lot number, AMS 4780C, form, and quantity.
- 4.5 Resampling and Retesting: Not applicable.

5. PREPARATION FOR DELIVERY:

5.1 Identification and Packaging:

- 5.1.1 The product shall be suitably wrapped, sealed, and boxed or otherwise packaged for protection against injury and contamination during shipment and under normal dry storage conditions.
- 5.1.2 Each exterior container or package shall be permanently and legibly marked with not less than the lot number, AMS 4780C, manufacturer's identification, and weight.