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AEROSPACE MATERIAL SPECIFICATION

SAE AMS-4184 REV D

Issued 1948-05-01
Revised 1990-10-01

Superseding AMS-4184C

Submitted for recognition as an American National Standard

FILLER METAL, ALUMINUM BRAZING
10Si - 4.0Cu (4145)

UNS A94145

1. SCOPE:

1.1 Form: This specification covers an aluminum alloy in the form of wire, sheet, pig, grains, shot, and chips.

1.2 Application: Primarily for joining aluminum by brazing.

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.

2.1.1 Aerospace Material Specifications:

AMS-2202 - Tolerances, Aluminum Alloy and Magnesium Alloy Sheet and Plate
MAM-2202 - Tolerances, Metric, Aluminum Alloy and Magnesium Alloy Sheet and Plate

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

ASTM B 660 - Packaging/Packing of Aluminum and Magnesium Products
ASTM E 34 - Chemical Analysis of Aluminum and Aluminum Alloys

3. TECHNICAL REQUIREMENTS:

3.1 Composition: Shall conform to the following percentages by weight, Ø determined by wet chemical methods in accordance with ASTM E 34, by spectrochemical methods, or by other analytical methods acceptable to purchaser:

	min	max
Silicon	9.3	10.7
Copper	3.3	4.7
Iron	--	0.8
Zinc	--	0.20
Chromium	--	0.15
Manganese	--	0.15
Magnesium	--	0.15
Other Impurities, each	--	0.05
Other Impurities, total	--	0.15
Aluminum	remainder	

3.2 Condition: Filler metal shall be furnished in the following condition:

3.2.1 Round Wire, Flattened and Slit Wire, and Sheet: Annealed.

3.2.2 Pig, Grains, Shot, and Chips: As fabricated.

3.3 Quality: Filler metal, as received by purchaser, shall be uniform in quality and condition, sound, and free from foreign materials and from imperfections detrimental to usage of the filler metal.

3.4 Standard Sizes and Tolerances: Shall conform to the following:

3.4.1 Round Wire:

Nominal Diameters		Tolerances, Plus and Minus	
Inch	Millimetres	Inch	Millimetre
1/32	0.8	0.001	0.025
1/16	1.6	0.001	0.025
3/32	2.4	0.0015	0.038
1/8	3.2	0.0015	0.038
3/16	4.8	0.0015	0.038
1/4	6.4	0.0015	0.038

3.4.2 Flattened and Slit Wire: Cross-section 0.020 inch ± 0.001 x 2 inches ± 0.006 (0.51 mm ± 0.03 x 51 mm ± 0.15).

3.4.3 Sheet: Tolerances for nominal thicknesses 0.010, 0.015, and 0.020 inch (0.25, 0.38, and 0.51 mm) shall be as specified in AMS-2202 or MAM-2202.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of filler metal shall supply all Ø 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 filler metal conforms to the requirements of this specification.

4.2 Classification of Tests: Tests for all technical requirements are Ø acceptance tests and shall be performed on each lot.

4.3 Sampling and Testing: Shall be in accordance with the following; a lot Ø shall be all filler metal produced from a single furnace charge:

4.3.1 Composition: At least one sample from each group of ingots poured simultaneously from the same source of molten metal.

4.3.1.1 Unless compliance with 4.3.1 is established, an analysis shall be made for each 6000 pounds (2722 kg) or less of filler metal comprising a lot.

4.4 Reports: The vendor of filler metal shall furnish with each shipment a report stating that the filler metal conforms to the chemical composition and other technical requirements. This report shall include the purchase order number, lot number, AMS-4184D, form and size or part number, and quantity.

5. PREPARATION FOR DELIVERY:

5.1 Identification:

5.1.1 Filler metal shall be identified as agreed upon by purchaser and vendor.

5.1.2 Each container or package shall be permanently and legibly marked with not less than the following information:

FILLER METAL, ALUMINUM BRAZING
AMS-4184D
LOT NUMBER _____
MANUFACTURER'S IDENTIFICATION _____
NOMINAL DIMENSIONS _____
WEIGHT _____

5.2 Packaging:

5.2.1 Filler metal shall be suitably wrapped, sealed, and boxed or otherwise packaged for protection against injury and contamination, during shipment and storage, under normal dry storage conditions.

5.2.2 Packages of filler metal shall be prepared for shipment in accordance with Ø commercial practice and in compliance with applicable rules and regulations pertaining to the handling, packaging, and transportation of the filler metal to ensure carrier acceptance and safe delivery.