



AEROSPACE MATERIAL SPECIFICATION

AMS4783

REV. G

Issued 1971-05
Reaffirmed 2008-05
Revised 2014-12

Superseding AMS4783F

(R) Cobalt Alloy, High Temperature Brazing Filler Metal
50Co - 8.0Si - 19Cr - 17Ni - 4.0W - 0.80B
2050 to 2100 °F (1121 to 1149 °C) Solidus-Liquidus Range
(Composition similar to UNS R30040)

RATIONALE

AMS4783G incorporates the industry standard requirements of AWS A5.8 and is a Five Year Review and update of this specification. Tensile testing has also been removed as the final product is not dependent on strength of the braze material.

1. SCOPE

1.1 Form

This specification covers a cobalt 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 cobalt alloys requiring corrosion and oxidation resistant joints with good strength at elevated temperatures, but usage is not limited to such applications.

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 ASTM Publications

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

ASTM B 214 Sieve Analysis of Granular Metal Powders

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3. TECHNICAL REQUIREMENTS

3.1 Product shall meet the requirements of AWS A5.8 BCo-1 and the following:

3.2 Condition

The product shall be supplied in the following condition:

3.2.1 Wire, Strip, and Foil

Powder bonded in a suitable binder.

3.2.2 Rod

As cast, with fins and projections removed.

3.2.3 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

The binder used for bonding powder to form wire and strip shall burn off, leaving no adherent residue, when the product is heated to 1000 °F (538 °C) or higher.

3.3.2 Paste

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

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. Rod and powder shall have a metallic luster. Wire, strip, and foil shall be clean, sound, smooth, and free from ragged edges, splitting, damaged ends, and other imperfections detrimental to usage of the products.

3.4.1 Powder

3.4.1.1 Mesh Designation:

Shall be 140F.

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 the performance of all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the product conforms to specified requirements.

4.2 Classification of Tests

4.2.1 Acceptance Tests

All technical requirements, other than shelf life of paste (3.3.2.1), are acceptance tests and shall be performed on each lot.

4.2.2 Periodic Tests

Shelf life of paste (3.3.2.1) is a periodic test and shall be performed at a frequency selected by the vendor unless frequency of testing is specified by purchaser.

4.3 Sampling and Testing

Shall be in accordance with the following:

4.3.1 Composition

One sample shall be taken from each furnace charge except that powder produced from consecutive furnace charges and collected together, without teardown of the atomizing equipment, shall constitute a batch, from which one or more samples shall be taken.

4.3.2 Properties Except Shelf Life of Paste

One sample from each lot.

4.3.2.1 A lot shall be all product, other than powder or paste, as defined by AWS A5.01 Lot Class S3..

4.3.2.2 A lot of powder shall be a uniform blend of powder produced from one or more furnace charges, except as modified by 4.3.1, each meeting the chemical requirements of this specification and presented for vendor's inspection at one time.

4.3.2.3 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

4.4 Reports

The vendor of the product shall furnish with each shipment a report showing the vendor's name and the country where the metal was melted (e.g., final melt in the case of metal processed by multiple melting operations) and the composition of each lot, and stating that the product conforms to the other technical requirements. This report shall include the purchase order number, lot number or numbers, AMS4783G, form, size, and quantity.

4.5 Resampling and Retesting

Not applicable.

5. PREPARATION FOR DELIVERY

5.1 Identification

5.1.1 Shall be as agreed upon by purchaser and vendor.

5.1.2 Each exterior container or package shall be permanently and legibly marked with not less than AMS4783G, lot number, manufacturer's identification, form, nominal size, and weight.

5.1.2.1 Each container and package of paste shall also be marked with the date of manufacture.