AEROSPACE MATERIAL SPECIFICATION

AMS3410™	REV. K

Issued 1940-03
Revised 2016-06
Reaffirmed 2021-08

Superseding AMS3410J

Flux, Silver Brazing

RATIONALE

AMS3410K revises 3.2.7 to specify a braze filler for flow testing that does not contain Cd and is a Five Year Review and update of this specification.

1. SCOPE

1.1 Form

This specification covers a silver-brazing flux in the form of a paste.

1.2 Application

This flux has been used typically for silver brazing nonferrous metals, excluding aluminum, magnesium, and zinc alloys, and ferrous metals including austenitic steels, at temperatures in the range 1150 to 1600 °F (621 to 871 °C), but usage is not limited to such applications.

1.3 Safety - Hazardous Materials

While the materials, methods, applications, and processes described or referenced in this specification may involve the use of hazardous materials, this specification does not address the hazards which may be involved in such use. It is the sole responsibility of the user to ensure familiarity with the safe and proper use of any hazardous materials and to take necessary precautionary measures to ensure the health and safety of all personnel involved.

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.

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
SAE WEB ADDRESS: **http://www.sae.org**

For more information on this standard, visit
https://www.sae.org/standards/content/AMS3410K/

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.

AMS4763 Silver Alloy, Brazing Filler Metal 56Ag - 22Cu - 17Zn - 5.0Sn 1145 to 1205 °F (618 to 652 °C) Solidus-Liquidus Range

AMS5510 Steel, Corrosion and Heat-Resistant, Sheet, Strip and Plate 18Cr - 10.5Ni - 0.40Ti (SAE 30321) Solution Heat Treated

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 E11 Woven Wire Test Sieve Cloth and Test Sieves

2.3 U.S. Government Publications

Copies of these documents are available online at http://quicksearch.dla.mil.

FED-STD-313 Material Safety Data, Transportation Date and Disposal Data for Hazardous Materials Furnished to Government Activities

3. TECHNICAL REQUIREMENTS

3.1 Material

The flux shall be a blended mixture of uniform consistency containing not more than 35% water by weight. It shall not separate in the container to an extent that it cannot be restored to uniform consistency by stirring.

3.2 Properties

The flux shall conform to the following requirements:

3.2.1 The flux, diluted with water as required, shall have acceptable fusibility and acceptable application and fluxing characteristics, and shall produce satisfactory brazed joints, of any type, on copper alloys, nickel alloys, and all types of steel, including corrosion-resistant alloys when used in conjunction with silver brazing filler metal.

3.2.2 During heating to 1,600 °F (871 °C), flux shall fuse at 1,150 °F (621 °C) or lower; when cooled from 1,600 °F (871 °C), flux shall remain in the liquid state until temperature drops to 1,150 °F (621 °C) or lower.

3.2.3 Flux, placed on a U.S. Standard 40 mesh (425 µm) sieve conforming to ASTM E11 and worked lightly with a brush, shall pass completely through the sieve. If the flux has partially agglomerated in the container, the flux may, before conducting the test, be warmed over a water bath until it has returned to its normal consistency.

3.2.4 Flux shall not produce, during use, a flame or smoke of sufficient intensity to obscure the work.

3.2.5 Flux shall be soluble in water at 175 °F (79 °C) or lower after being subjected to normal brazing operations.

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

3.2.7 When applied to AMS5510 corrosion-resistant steel, using AMS4763 filler metal and heated in air to 1300 to 1350 °F (704 to 732 °C), flux shall cause braze filler metal to flow with no evidence of balling or dewetting.

3.3 Quality

Flux, as received by purchaser, shall be uniformly blended, free from contaminants and from foreign materials detrimental to the usage of the flux.

4. QUALITY ASSURANCE PROVISIONS

4.1 Responsibility for Inspection

The vendor of flux shall supply all samples for vendor's tests and shall be responsible for performance of all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the flux conforms to the specified requirements.

4.2 Classification of Tests

4.2.1 Acceptance Tests

Tests for all technical requirements, except shelf life (3.2.6), are acceptance tests and shall be performed on each lot.

4.2.2 Periodic Tests

Tests for shelf life (3.2.6) are periodic tests and shall be performed at a frequency selected by the vendor unless frequency of testing is specified by purchaser.

4.3 Sampling and Testing

At least one randomly selected sample of flux shall be randomly selected from each lot. A lot shall be all flux in an identifiable quantity produced in a single run from the same batches of raw materials and presented for vendor's inspection at one time.

4.4 Reports

The vendor of flux shall furnish with each shipment a report stating that the flux conforms to all technical requirements. This report shall include the purchase order number, lot number, AMS3410K, date of manufacture, identification and quantity.

4.4.1 A material safety data sheet in accordance with FED-STD-313, or equivalent, shall be supplied to each purchaser, prior to, or concurrent with the first shipment of flux for production use. Each request for modification of flux formulation shall be accompanied by a revised data sheet for the proposed formulation.

4.5 Resampling and Retesting

If any sample used in the above tests fails to meet the specified requirements, disposition of the flux may be based on the results of testing three additional samples for each original nonconforming sample. Failure of any retest sample to meet the specified requirements shall be cause for rejection of the flux represented. Results of all tests shall be reported.

5. PREPARATION FOR DELIVERY

5.1 Identification

5.1.1 Flux shall be assigned a name unique to this product, a code consisting of letters and/or numbers, or other identification traceable to a specific set of raw materials, ingredients, manufacturing processes, procedures and sequences, and methods of inspection. If necessary to make any changes in the raw materials, ingredients, manufacturing processes, procedures or sequences, or methods of inspection, the identifying name or code shall also be changed.

5.1.2 Each package of flux shall permanently and legibly marked with not less than the following information:

FLUX, SILVER BRAZING
AMS3410K
PURCHASE ORDER NUMBER_____
MANUFACTURER'S NAME_____
MANUFACTURER'S DESIGNATION (see 5.1.1)_____
LOT NUMBER_____
DATE OF MANUFACTURE_____
DIRECTIONS FOR MIXING AND APPLICATION_____
WEIGHT OF CONTENTS_____

5.2 Packaging

5.2.1 A lot of flux may be packaged in small quantities and delivered under the basic lot acceptance provided lot identification is maintained.

5.2.2 Containers of flux shall be packaged to ensure that the flux, during shipment and storage, will be protected against damage from exposure to moisture, weather, or any other normal hazard.

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

6. ACKNOWLEDGMENT

A vendor shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

7. REJECTIONS

Flux not conforming to this specification, or to modifications authorized by purchaser, will be subject to rejection.

8. NOTES

8.1 Revision Indicator

A change bar (l) located in the left margin is for the convenience of the user in locating areas where technical revisions, not editorial changes, have been made to the previous issue of this document. An (R) symbol to the left of the document title indicates a complete revision of the document, including technical revisions. Change bars and (R) are not used in original publications, nor in documents that contain editorial changes only.

8.2 Terms used in AMS are clarified in ARP1917.