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AEROSPACE MATERIAL SPECIFICATION

AMS 3410G
Superseding AMS 3410F

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FLUX, SILVER BRAZING

1. SCOPE:

1.1 Form: This specification covers a silver-brazing flux in paste form which contains not more than 35% water by weight.

1.2 Application: Primarily for silver brazing nonferrous (excluding aluminum alloys and magnesium alloys) and ferrous metals, including austenitic steels, at temperatures in the range 1150° to 1600°F (620°to 870°C).

2. APPLICABLE DOCUMENTS: The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications shall apply. The applicable issue of other documents shall be as specified in AMS 2350.

2.1 SAE Publications: Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096.

2.1.1 Aerospace Material Specifications:

AMS 2350 - Standards and Test Methods

2.2 ASTM Publications: Available from American Society for Testing and Materials, 1916 Race Street, Philadelphia, PA 19103.

ASTM E11 - Wire-Cloth Sieves for Testing Purposes

2.3 U.S. Government Publications: Available from Commanding Officer, Naval Publications and Forms Center, 5801 Tabor Avenue, Philadelphia, PA 19120.

2.3.1 Military Standards:

MIL-STD-794 - Parts and Equipment, Procedures for Packaging and Packing of

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3. TECHNICAL REQUIREMENTS:

3.1 Material: The flux shall be an intimately blended mixture of uniform consistency. It shall not separate in the container to such an extent that it cannot be restored to uniform consistency by stirring.

3.1.1 The flux, diluted with water as required, shall have acceptable fusibility and acceptable application and fluxing characteristics, and shall produce Ø satisfactory brazed joints of any type on copper alloys, nickel alloys, and all types of steels, including corrosion resistant types, when used in conjunction with silver brazing filler metal. Methods of determining acceptability of flux performance shall be as agreed upon by purchaser and vendor.

3.2 Properties:

3.2.1 Flux shall withstand heating in a suitable container to 1600°F ± 10 (870°C ± 5) and holding at heat for 30 min. ± 3 without appreciable change in physical characteristics. On heating, flux shall fuse at 1150°F (620°C) or lower; on cooling from 1600°F (870°C), flux shall remain in the liquid state until temperature drops to 1150°F (620°C) or lower.

3.2.2 Flux, when 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 coagulated in the container, the flux may, before conducting the test, be warmed over a water bath until it has returned to its normal consistency.

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

3.2.4 Flux shall be soluble in water at 175°F (80°C) or lower after being subjected to normal brazing operations.

3.2.5 Flux shall have a shelf life of not less than 6 months; not more than thorough mixing shall be required to restore flux for use during that time.

3.3 Quality: Flux, as received by purchaser, shall be free from all substances which might affect its serviceability.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection: The vendor of the flux shall supply all samples for vendor's tests and shall be responsible for performing all Ø required tests. Results of such tests shall be reported to the purchaser as required by 4.5. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the flux conforms to the requirements of this specification.

4.2 Classification of Tests:

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4.2.1 Acceptance Tests: Tests to determine conformance to all technical requirements of this specification are classified as acceptance tests and shall be performed on each batch.

4.2.2 Preproduction Tests: Tests to determine conformance to all technical requirements of this specification are classified as preproduction tests and shall be performed prior to or on the initial shipment of flux to a purchaser, when a change in material, processing, or both requires reapproval as in 4.4.2, and when purchaser deems confirmatory testing to be required.

4.2.2.1 For direct U.S. Military procurement, substantiating test data and, when requested, preproduction test material shall be submitted to the cognizant agency as directed by the procuring activity, the contracting officer, or the request for procurement.

4.3 Sampling: At least one randomly selected sample of flux per batch. A batch is defined as all flux in an identifiable quantity processed at one time and presented for vendor's inspection at one time.

4.4 Approval:

4.4.1 Sample flux shall be approved by purchaser before flux for production use is supplied, unless such approval be waived by purchaser. Results of tests on production flux shall be essentially equivalent to those on the approved sample.

4.4.2 Vendor shall use ingredients, manufacturing procedures, processes, and methods of inspection on production flux which are essentially the same as those used on the approved sample flux. If necessary to make any change in ingredients, in type of equipment for processing, or in manufacturing procedures, vendor shall submit for reapproval a statement of the proposed changes in material, processing, or both and, when requested, sample flux. Production flux made by the revised procedure shall not be shipped prior to receipt of reapproval.

4.5 Reports:

4.5.1 The vendor of the flux shall furnish with each shipment a report stating that the flux conforms to the technical requirements of this specification. This report shall include the purchase order number, AMS 3410G, batch number, date of manufacture, and quantity.

4.5.2 When assemblies requiring use of this flux are supplied, the assembly manufacturer shall inspect each lot of flux to determine conformance to the technical requirements of this specification and shall furnish with each shipment a report stating that the flux conforms. This report shall include the purchase order, AMS 3410G, assembly number, and quantity.

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4.6 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 and no additional testing shall be permitted. Results of all tests shall be reported.

5. PREPARATION FOR DELIVERY:

5.1 Identification: Each package shall be permanently and legibly marked with not less than the following information:

FLUX, SILVER BRAZING
AMS 3410G
PURCHASE ORDER NUMBER _____
MANUFACTURER'S NAME _____
MANUFACTURER'S DESIGNATION _____
BATCH NUMBER _____
DATE OF MANUFACTURE _____
DIRECTIONS FOR MIXING AND APPLICATION _____
WEIGHT OF CONTENTS _____

5.2 Packaging:

5.2.1 Flux shall be supplied in 8 oz (225 g), 16 oz (450 g), or 5 lb (2.25 kg) glass containers, unless otherwise ordered.

5.2.2 Ø Containers of flux shall be suitably wrapped, sealed, and boxed or otherwise packaged for protection against injury and contamination during shipment and under normal dry storage conditions.

5.2.3 Ø 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. Packaging shall conform to carrier rules and regulations applicable to the mode of transportation.

5.2.4 Ø For direct U.S. Military procurement, packaging shall be in accordance with MIL-STD-794, Level A or Level C, as specified in the request for procurement. Commercial packaging as in 5.2.1, 5.2.2, and 5.2.3 will be acceptable if it meets the requirements of Level C.

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.

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