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INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard

SAE AMS 3415B

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Superseding AMS 3415A

FLUX, ALUMINUM DIP BRAZING
1030 °F (554 °C) or Lower Liquidus

1. SCOPE:

1.1 Form:

This specification covers an aluminum brazing flux in granular form.

1.2 Application:

This product has been used typically for dip brazing of aluminum and aluminum alloys at temperatures above 1050 °F (564 °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 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.

AMS 2673 Aluminum Molten Flux (Dip) Brazing
AMS 2825 Material Safety Data Sheets
AMS 4001 Aluminum Sheet and Plate, 0.12Cu (1100-0), Annealed

Printed in U.S.A.
91-0942/ EG

2.2 U.S. Government Publications:

Available from Standardization Documents Order Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

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

3. TECHNICAL REQUIREMENTS:

3.1 Material:
(R)

The flux shall be a uniformly blended mixture, primarily metallic chlorides with the addition of metallic fluorides, containing not more than 0.5% by weight water.

3.1.1 The flux, used in conjunction with aluminum brazing alloys in accordance with AMS 2673, shall produce satisfactory brazed joints acceptable to purchaser.

3.2 Properties:

Flux shall conform to the following requirements:

3.2.1 On heating or cooling, flux shall be fully molten at 1030 °F (554 °C). The liquidus of the flux shall be 1030 °F (554 °C) or lower.

3.2.2 Flux shall not etch parent metal to an extent greater than indicated by the following test:

3.2.2.1 A coupon of AMS 4001 aluminum (Alloy 1100), or equivalent, nominally 0.025 x 1 x 6 inches (0.64 x 25 x 152 mm), immersed for 2 minutes ± 0.2 in a bath of dehydrated molten flux at 1120 °F ± 10 (604 °C ± 6) shall not be reduced more than 0.001 inch (0.025 mm) in thickness.

3.2.3 Flux adhering to brazed assemblies shall be removable by either: 1) water at 190 °F (88 °C) or hotter or 2) by the hot water followed by immersion in a 10% solution of nitric acid to which 0.25% hydrofluoric acid is added for not more than 15 minutes at a solution temperature not higher than 100 °F (38 °C).

3.3 Quality:
(R)

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

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:
(R)

The vendor of flux 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 flux 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:
(R)

At least one randomly selected sample of flux from each lot; a lot shall be all flux in an identifiable quantity processed at one time 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 the technical requirements. This report shall include the purchase order number, lot number, AMS 3415B, date of manufacture, and quantity.

4.4.1 (R) A material safety data sheet conforming to AMS 2825, or equivalent, shall be supplied to each purchaser prior to, or concurrent with, the report of preproduction test results or, if preproduction testing be waived by purchaser, 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:
(R)

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:

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

FLUX, ALUMINUM DIP BRAZING
AMS 3415B
WEIGHT OF CONTENTS _____
MANUFACTURER'S IDENTIFICATION _____
LOT NUMBER _____
DATE OF MANUFACTURE _____
PURCHASE ORDER NUMBER _____

5.1.1 (R) Flux shall be given an identification name or number as part of the manufacturer's identification. Any change in ingredients, proportions, or method of manufacture shall require that the identification name or number be change.

5.1.2 (R) Warning Label: Shall be prominently displayed on all packages of flux, including individual unit packages, with the following label, permanently and legibly affixed to the package, as a minimum:

Warning: CONTAINS FLUORIDES. Protect yourself and others. Read and understand this label

FUMES AND GASES can be dangerous to your health.

* Before use, read and understand the manufacturer's instructions. Material Safety Data Sheets, (MSDSs), and your employer's safety practices.
* Keep your head out of the fumes.
* Use enough ventilation to keep fumes and gases away from your breathing zone and the general area.
* Avoid contact of flux with eyes and skin.
* Do not take internally.
* Keep out of reach of children.
* See American National Standard Z49.1 Safety in Welding and Cutting, published by the American Welding Society, 550 N.W. LeJeune Road, P.O. Box 351040, Miami, Florida 33135-1040; OSHA Safety and Health Standards 29 CFR 1910, available from the U.S. Government Printing Office, Washington DC 20402.

First Aid: In the case of eye contact, flush immediately with clean water for at least 15 minutes. If swallowed, induce vomiting. Never give anything by mouth to an unconscious person. Call a physician.

DO NOT REMOVE THIS LABEL

5.2 Packaging:

5.2.1 Flux shall be supplied in 8 ounce (227 g), 16 ounce (454 g), or 5 pound (2.3 kg) containers, and 50 pound (22.7 kg), 100 pound (45.4 kg), 200 pound (90.7 kg), and 400 pound (181.4 kg) fiber drums with an interior polyethylene bag sealed by a twisted plastic coated wire, or the flux shall be supplied in 100 pound (45.4 kg) self-sealing 6 mil (0.15 mm) thick low-density polyethylene bags, stacked on a wooden pallet for bulk shipments.

5.2.2 (R) The drums or bags 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 product to ensure carrier acceptance and safe delivery.

5.2.3 (R) For direct U.S. Military procurement, packaging shall be in accordance with MIL-STD-2073-1, Commercial Level, unless Level A is specified in the request for procurement.