

# AEROSPACE MATERIAL SPECIFICATION



AMS 2483B

Issued OCT 1983  
Revised APR 2001  
Reaffirmed APR 2006

Superseding AMS 2483A

## Blackening Solution For Aluminum Touch-Up Solution

### 1. SCOPE:

#### 1.1 Purpose:

This specification covers a blackening solution, applied at room temperature, to damaged or reworked surfaces of black-dyed anodized (AMS 2472) aluminum to provide a uniform ebony-black surface.

#### 1.2 Application:

This solution has been used typically for touch-up of dyed anodic coatings used for decorative and optical applications, 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 canceled and no superseding document has been specified, the last published issue of that document shall apply.

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## 2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

AMS 2472 Anodic Treatment of Aluminum Alloys, Sulfuric Acid Process, Dyed Coating  
AMS 4037 Aluminum Alloy Sheet and Plate, 4.4Cu - 1.5Mg - 0.60Mn (2024; -T3 Flat Sheet, -T351 Plate), Solution Heat Treated

## 2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM D 2247 Testing Water Resistance of Coatings in 100% Relative Humidity

## 3. TECHNICAL REQUIREMENTS:

### 3.1 Composition:

Shall be optional with the manufacturer but shall yield a product conforming to the requirements of 3.2.

### 3.2 Properties:

Coated test panels shall conform to the following requirements; tests shall be conducted in accordance with specified test methods on test panels prepared as in 4.3.1:

3.2.1 Humidity Resistance: Coated test panels shall withstand, without evidence of corrosion, exposure for not less than 120 hours to humidity test conducted in accordance with ASTM D 2247, except that the temperature in the humidity cabinet shall be  $50\text{ }^{\circ}\text{C} \pm 3$  ( $122\text{ }^{\circ}\text{F} \pm 5$ ).

3.2.2 Blackening Ability: Solution shall form a coating that completely covers the existing bare aluminum surface providing a uniform, ebony-black surface that is free from smut when wiped with a clean, dry, white cloth.

3.2.3 Dimensional Change: Solution shall cause no change in dimensions of test panels, measured by micrometer.

### 3.3 Quality:

The blackening solution, as received by purchaser, shall be uniform in quality and condition and free from foreign materials and from other contaminants detrimental to usage of the product.

3.3.1 Applied coating on polished surfaces shall have a uniform, lustrous black color. Coating on non-polished surfaces shall be black or dark gray in color and uniform on areas of equivalent surface finish. An overall reddish-brown cast on a basically black color is acceptable.

3.3.2 Coating shall not cause damage or degradation of existing anodic coatings on aluminum surfaces and shall not rub off under normal handling.

#### 4. QUALITY ASSURANCE PROVISIONS:

##### 4.1 Responsibility for Inspection:

The vendor of the blackening solution 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 blackening solution conforms to the requirements of this specification.

##### 4.2 Classification of Tests:

All technical requirements are acceptance tests and as preproduction tests and shall be performed prior to or on the initial shipment of blackening solution to a purchaser, on each lot, when a change is made in ingredients and/or processing, and when purchaser deems confirmatory testing to be required.

##### 4.3 Sampling and Testing:

Sufficient blackening solution shall be taken at random from each lot to perform all required tests. The number of determinations for each requirement shall be as specified in the applicable test procedure or, if not specified therein, not less than three. A lot shall be all blackening solution manufactured at one time from one group of raw materials.

4.3.1 Samples for determining conformance to the requirements of 3.2 shall be panels of AMS 4037 aluminum alloy, or equivalent, approximately 0.040 x 1 x 3 inches (1 x 25 x 76 mm), anodized and dyed black in accordance with AMS 2472. An area of the anodized coating shall be removed using 240 grit abrasive paper. Clean the panels by wiping with a cloth dampened with a suitable solvent, coat the abraded area with the blackening solution at room temperature using either swab or dip method, rinse, and dry in accordance with manufacturer's recommendations. Blackening solution shall be applied to the panels at the lowest use dilution recommended by manufacturer.

##### 4.4 Reports:

The vendor of the blackening solution shall furnish with each shipment a report stating that the blackening solution conforms to the specified requirements and that it conforms to acceptance test requirements. This report shall include the purchase order number, lot number, AMS 2483B, manufacturer's identification, and quantity.

##### 4.5 Resampling and Retesting:

If any sample used in the above tests fails to meet the specified requirements, disposition of the blackening solution 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 blackening solution represented. Results of all tests shall be reported.

## 5. PREPARATION FOR DELIVERY:

### 5.1 Packaging and Identification:

- 5.1.1 Packaging shall be accomplished to ensure that the blackening solution, during shipment and storage, will be protected against damage from exposure to weather or any other normal hazards.
- 5.1.2 Blackening solution shall be packaged in containers of a type and size acceptable to purchaser.
  - 5.1.2.1 A lot of solution may be packaged in small quantities and delivered under the basic lot approval provided lot identification is maintained.
- 5.1.3 Product shall be assigned a unique identification number, letter, name, or combination of these, representative of the materials and processes used to make the product. This identification shall be changed if there is any change in material or manufacturing process.
- 5.1.4 Each container shall be legibly marked with not less than AMS 2483B, purchase order number, vendor's identification, lot number, date of manufacture, quantity, and directions for use and precautions for storage.
- 5.1.5 Containers of blackening solution 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 solution 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:

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

## 8. NOTES:

- 8.1 The change bar ( I ) 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 specification. An (R) symbol to the left of the document title indicates a complete revision of the specification, including technical revisions. Change bars and (R) are not used in original publications, nor in specifications that contain editorial changes only.
- 8.2 Dimensions in inch/pound units and the Celsius temperatures are primary; dimensions in SI units and the Fahrenheit temperatures are shown as the approximate equivalents of the primary units and are presented only for information.