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Superseding AMS4121G	

Aluminum Alloy Bars, Rods, and Wire, Rolled or Cold Finished  
4.5Cu - 0.85Si - 0.80Mn - 0.50Mg (2014-T6)  
Solution and Precipitation Heat Treated  
(Composition similar to UNS A92014)

RATIONALE

AMS4121H has been reaffirmed to comply with the SAE five-year review policy.

1. SCOPE

1.1 Form

This specification covers an aluminum alloy in the form of bars, rods, and wire.

1.2 Application

These products have been used typically for parts requiring high strength where limited formability is acceptable but usage is not limited to such applications.

1.2.1 Certain design and processing procedures may cause these products to become susceptible to stress-corrosion cracking; ARP823 recommends practices to minimize such conditions.

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 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), [www.sae.org](http://www.sae.org).

AMS 2355 Quality Assurance Sampling and Testing, Aluminum Alloys and Magnesium Alloys, Wrought Products, Except Forging Stock, and Rolled, Forged, or Flash Welded Rings

AMS 2772 Heat Treatment of Aluminum Alloy Raw Materials

ARP823 Minimizing Stress-Corrosion Cracking in Wrought Heat-Treatable Aluminum Alloy Products

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## 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](http://www.astm.org).

ASTM B666/B666M Identification Marking of Aluminum and Magnesium Products

## 2.3 ANSI Publications

Available from American National Standards Institute, 25 West 43rd Street, New York, NY 10036, Tel: 212-642-4900, [www.ansi.org](http://www.ansi.org).

ANSI H35.2/H35.2M Dimensional Tolerances for Aluminum Mill Products

## 3. TECHNICAL REQUIREMENTS

### 3.1 Composition

Shall conform to the percentages by weight shown in Table 1, determined in accordance with AMS 2355.

TABLE 1 - COMPOSITION

Element	min	max
Silicon	0.50	1.2
Iron	--	0.7
Copper	3.9	5.0
Manganese	0.40	1.2
Magnesium	0.20	0.8
Chromium	--	0.10
Zinc	--	0.25
Titanium	--	0.15
Other Elements, each	--	0.05
Other Elements, total	remainder	0.15

### 3.2 Condition

Rolled or cold finished, as ordered, and solution and precipitation heat treated in accordance with AMS 2772.

### 3.3 Properties

Rods 8 inches (203 mm) and under in nominal diameter; squares, hexagons, and octagons 4 inches (102 mm) and under across flats; and rectangles with a nominal thickness of 4 inches (102 mm) and under and a maximum cross-sectional area of 36 square inches (232 cm<sup>2</sup>), shall, except as specified in 3.3.1.1 conform to the requirements, shown in Table 2 determined in accordance with AMS 2355:

#### 3.3.1 Tensile Properties

Shall be as shown in Table 2.

TABLE 2 - MINIMUM TENSILE PROPERTIES

Property	Value
Tensile Strength	65.0 ksi (448 MPa)
Yield Strength at 0.2% Offset	55.0 ksi (379 MPa)
Elongation in 4D	8%

3.3.1.1 Yield strength and elongation requirements do not apply to product under 0.125 inch (3.18 mm) in nominal diameter or distance between parallel sides.

### 3.4 Quality

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

### 3.5 Tolerances

Shall conform to all applicable requirements of ANSI H35.2 or ANSI H35.2M.

## 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 tests are acceptance tests and except for composition, shall be performed on each lot.

### 4.3 Sampling and Testing

Shall be in accordance with AMS 2355.

### 4.4 Reports

The vendor of product shall furnish with each shipment a report stating that the product conforms to the composition and tolerances, and showing the numerical results of tests on each inspection lot to determine conformance to the other acceptance test requirements. This report shall include the purchase order number, lot number, AMS 4121H, form and size or part number, and quantity. The report shall also identify the producer, the product form, and the size of the mill product.

### 4.5 Resampling and Retesting

Shall be in accordance with AMS 2355.

## 5. PREPARATION FOR DELIVERY

### 5.1 Identification

Shall be in accordance with ASTM B666/B666M.

### 5.2 Packaging

#### 5.2.1 Protective Treatment

When specified, the product shall be oiled, prior to shipment, with a light corrosion-inhibiting oil.

5.2.2 The product 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.