

QQ-A-225/3D  
June 9, 1971  
SUPERSEDING  
Fed. Spec. QQ-A-225/3C  
March 7, 1967

FEDERAL SPECIFICATION

ALUMINUM ALLOY BAR, ROD, AND WIRE;  
ROLLED, DRAWN, OR COLD FINISHED, 2011

This specification was approved by the  
Commissioner, Federal Supply Service,  
General Services Administration, for the  
use of all Federal agencies.

(This specification forms a part of the  
latest issue of Federal Specification  
QQ-A-225).

1. SCOPE AND CLASSIFICATION

1.1 Scope. This specification covers the specific requirements for aluminum alloy 2011 bar, rod, and wire produced by rolling, drawing, or cold finishing; the general requirements are covered in QQ-A-225.

1.2 Classification.

1.2.1 Tempers. The bar, rod, and wire shall be classified as T3, T4, T8, or T451 temper, as specified (see 6.2). The definitions of these tempers shall be as specified in ANSI Std. H35.1.

2. APPLICABLE DOCUMENTS

2.1 The following document, of the issue in effect on date of invitation for bids or request for proposal, form a part of this specification to the extent specified herein.

Federal Specification

QQ-A-225 - Aluminum and Aluminum Alloy Bar, Rod, Wire, or Special Shapes;  
Rolled, Drawn, or Cold Finished; General Specification for.

FSC 9525, 9530

QQ-A-225/3D

(Activities outside the Federal Government may obtain copies of Federal Specifications, Standards, and Handbooks as outlined under General Information in the Index of Federal Specifications and Standards and at the prices indicated in the Index. The Index, which includes cumulative monthly supplements as issued, is for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

(Single copies of this specification and other Federal Specifications required by activities outside the Federal Government for bidding purposes are available without charge from Business Service Centers at the General Services Administration Regional Offices in Boston, New York, Washington, DC, Atlanta, Chicago, Kansas City, MO, Fort Worth, Denver, San Francisco, Los Angeles and Seattle, WA.

(Federal Government activities may obtain copies of Federal Specifications, Standards, and Handbooks and the Index of Federal Specifications and Standards from the established distribution points in their agencies.)

(Copies of Military Specifications and Standards required by contractors in connection with specific procurement functions should be obtained from the procuring activity or as directed by the contracting officer.)

2.2 Other publications. The following document forms a part of this specification to the extent specified herein. Unless a specific issue is identified, the issue in effect on date of invitation for bids or request for proposal shall apply.

American National Standards Institute (ANSI) Standard:

H35.1 - Alloy and Temper Designation Systems for Aluminum.

(Application for copies should be addressed to the American National Standards Institute, 1430 Broadway, New York, NY 10018.)

3. REQUIREMENTS

3.1 Chemical composition.

3.1.1 The material shall conform to the chemical requirements specified in table I.

TABLE I. Chemical composition <sup>1/</sup>

Elements	Percent	
	Minimum	Maximum
Copper	5.0	6.0
Bismuth	0.20	0.6
Lead	.20	.6
Iron	-	.7
Silicon	-	.40
Zinc	-	.30
Other elements, each	-	.05
Other elements, total	-	.15
Aluminum	Remainder	

<sup>1/</sup> Analysis shall regularly be made only for the elements specifically mentioned in table I. If, however, the presence of other elements is suspected, or indicated in the course of routine analysis, further analysis shall be made to determine that the total of other elements is not in excess of the limits specified.

### 3.2 Mechanical properties.

3.2.1 Mechanical properties of material as supplied. The mechanical properties in the direction of working shall conform to the requirements of table II, for the temper specified.

TABLE II. Mechanical properties

Temper	Diameter or thickness	Tensile strength, minimum	Yield strength at 0.2 percent offset, <sup>1/</sup> minimum	Elongation in 2 inches, or 4 times dia. <sup>1/</sup> , minimum
		P.s.i.	P.s.i.	Percent
T3	0.125 to 1.500, incl.	45,000	38,000	10
	1.501 to 2.000, incl.	43,000	34,000	12
	2.001 to 3.250, incl.	42,000	30,000	14
T8	0.125 to 3.250, incl.	54,000	40,000	10
T4	Up to 8.000, incl.	40,000	18,000	16
T451	0.500 to 8.000, incl.	40,000	18,000	16

<sup>1/</sup> The measurement of elongation and yield strength is not required for wire less than 0.125 inch in diameter or thickness.

3.3 Finish. Unless otherwise specified in the contract or order (see 6.2), rod up to and including 3 inches in diameter, and bar up to and including 2 inches thick (with maximum width for rectangle of 4 inches) shall be supplied cold finished. Wire shall be supplied with an as-drawn finish.

## 4. QUALITY ASSURANCE PROVISIONS (See QQ-A-225.)

## STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

(See Instructions - Reverse Side)

1. DOCUMENT NUMBER	2. DOCUMENT TITLE
3a. NAME OF SUBMITTING ORGANIZATION	4. TYPE OF ORGANIZATION (Mark <input type="checkbox"/> )
b. ADDRESS (Street, City, State, ZIP Code)	<input type="checkbox"/> VENDOR <input type="checkbox"/> USER <input type="checkbox"/> MANUFACTURER <input type="checkbox"/> OTHER (Specify) _____
5. PROBLEM AREAS	
a. Paragraph Number and Wording	
b. Recommended Wording	
c. Reason/Rationale for Recommendation.	
6. REMARKS	
7a. NAME OF SUBMITTER (Last, First, MI) - Optional	b. WORK TELEPHONE NUMBER (Include Area Code) - Optional
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