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AEROSPACE MATERIAL SPECIFICATION

SAE AMS-QQ-A-200/5

Issued JUL 1997

Submitted for recognition as an American National Standard

Aluminum Alloy 5086, Bar, Rod, Shapes, Tube, and Wire, Extruded

UNS 95086

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The complete requirements for procuring aluminum alloy 5086 bar, rod, shapes, tube, and wire extruded described herein shall consist of this document and the latest issue of AMS-QQ-A-200.

1. SCOPE AND CLASSIFICATION:

1.1 Scope:

This specification covers the specific requirements for aluminum alloy 5086 bar, rod, shapes, tube, and wire produced by extrusion.

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1.2 Classification:

1.2.1 Tempers: Bar, rod, shapes, tube, and wire are classified in the following tempers as specified (See 6.2): O, H111, and H112. Definitions of tempers are specified in AMS-QQ-A-200.

1.2.2 Tubing: Tubing shall be additionally classified as follows:

Type	Description
I	- Tubing extruded from hollow billets using die and mandrel (See AMS-QQ-A-200).
II	- Tubing extruded from solid billets using a porthole or spider die or similar tooling (See AMS-QQ-A-200).

1.2.2.1 See AMS-QQ-A-200 for application of each type.

2. APPLICABLE DOCUMENTS:

See AMS-QQ-A-200.

3. REQUIREMENTS:

3.1 Chemical Composition:

The chemical composition shall conform to the requirements specified in Table I.

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TABLE I. Chemical Composition 1/

Element	Percent	
	Minimum	Maximum
Zinc	--	0.25
Magnesium	3.5	4.5
Copper	--	0.10
Chromium	0.05	0.25
Iron	--	0.50
Silicon	--	0.40
Manganese	0.20	0.7
Titanium	--	0.15
Other Elements, each	--	0.05
Other Elements, total 2/	--	0.15
Aluminum	Remainder	

1/ Analysis shall routinely be made only for the elements specifically mentioned in Table I. If, however, the presence of other elements is indicated or suspected in amounts greater than the specified limits, further analysis shall be made to determine that these elements are not present in excess of specified limits.

2/ The sum of those "others" metallic elements 0.010 percent or more each, expressed to the second decimal before determining the sum.

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3.2 Mechanical Properties:

3.2.1 Mechanical Properties of Material as Supplied: The mechanical properties in the direction of extrusion shall conform to requirements specified in Table II. (See AMS-QQ-A-200 for exceptions to elongation requirements.)

TABLE II. Mechanical Properties

Temper	Thickness, (bar and shapes); diameter, (rod and wire); wall thickness, (tube); Inches	Area Square Inches	Tensile Strength minimum ksi	Yield strength at 0.2 percent Offset or at extension indicated		Elongation in 2 inches or 4 times specimen diameter minimum, percent
				minimum ksi	Extension under load, inch per inch	
O	Up thru 5.000	Up thru 32	35.0 1/	14.0	0.0034	14
H111	Up thru 5.000	Up thru 32	36.0	21.0	0.0040	12
H112	Up thru 5.000	Up thru 32	35.0	14.0	0.0034	12

1/ Maximum tensile strength is 46.0 ksi.

3.3 Marking:

See AMS-QQ-A-200.

4. QUALITY ASSURANCE PROVISIONS:

See AMS-QQ-A-200.

5. PREPARATION FOR DELIVERY:

See AMS-QQ-A-200.

6. NOTES:

6.1 Intended Use:

Aluminum alloy 5086 bar, rod, shapes, tube, and wire produced by extrusion are intended for use where applications require a weldable moderate-strength alloy having comparatively good corrosion resistance, such as marine applications, storage tanks, and cargo vehicles.

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