SAE Aerospace
An SAE International Group

AEROSPACE MATERIAL SPECIFICATION

SAE AMS-QQ-A-200/4A

Issued JUL 1997
Revised SEP 1998
Reaffirmed APR 2007

Superseding AMS-QQ-A-200/4

Aluminum Alloy 5083, Bar, Rod, Shapes, Tube, and Wire, Extruded

A95083

RATIONALE

This document has been reaffirmed to comply with the SAE 5-year Review policy.

NOTICE

This document has been taken directly from Federal Specification QQ-A-200/4D, Amendment 1, and contains only minor editorial and format changes required to bring it into conformance with the publishing requirements of SAE technical standards.

The original Federal Specification was adopted as an SAE standard under the provisions of the SAE Technical Standards Board (TSB) Rules and Regulations (TSB 001) pertaining to accelerated adoption of government specifications and standards. TSB rules provide for (a) the publication of portions of unrevised government specifications and standards without consensus voting at the SAE Committee level, (b) the use of the existing government specification or standard format, and (c) the exclusion of any qualified product list (QPL) sections.

The complete requirements for procuring aluminum alloy 5083 bar, rod, shapes, tube, and wire extruded described herein shall consist of this document and the latest issue of AMS-QQ-A-200.

TO PLACE A DOCUMENT ORDER: **Tel: 877-606-7323 (inside USA and Canada)**
Tel: 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: custsvc@sae.org
SAE WEB ADDRESS: **http://www.sae.org**

1. SCOPE AND CLASSIFICATION:

1.1 Scope:

This specification covers the specific requirements for aluminum alloy 5083 bar, rod, shapes, tube, and wire produced by extrusion.

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, or H112. Definitions of tempers are specified in AMS-QQ-A-200.

1.2.2 Tubing: Tubing shall be additionally classified as follows:

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

2. APPLICABLE DOCUMENTS:

See AMS-QQ-A-200.

3. REQUIREMENTS:

3.1 Chemical Composition:

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

TABLE I. Chemical Composition 1/

Element	Percent	
	Minimum	Maximum
Magnesium	4.0	4.9
Manganese	0.40	1.0
Chromium	0.05	0.25
Silicon	--	0.40
Iron	--	0.40
Copper	--	0.10
Zinc	--	0.25
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 the course of routine analysis, further analysis shall be made to determine conformance to the limits specified for other elements.

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

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.

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, minimum ksi	Elongation in 2 in. or 4 times D 1/ 3/, minimum, percent
O	Up thru 5.000	up thru 32	2/ 39.0	16.0	14
H111	Up thru 5.000	up thru 32	40.0	24.0	12
H112	Up thru 5.000	up thru 32	39.0	16.0	12

1/ D represents specimen diameter.
2/ Maximum tensile strength is 51.0 ksi.
3/ See AMS-QQ-A-200 for elongation requirement exceptions.

4. QUALITY ASSURANCE PROVISIONS:

See AMS-QQ-A-200.

5. PREPARATION FOR DELIVERY:

See AMS-QQ-A-200.

6. NOTES:

6.1 Intended Use:

This alloy is for use where a weldable, moderate strength alloy having good corrosion resistance is required.