

Aluminum Alloy, Sheet and Plate
6.3Cu - 0.30Mn - 0.06Ti - 0.10V - 0.18Zr
(2219 - O, F, T31, T351, T37, T81, T851, T87)
(Composition similar to UNS A92219)

RATIONALE

AMS4295D rescinds the cancellation effected with revision C, and designates this specification as stabilized.

STABILIZATION NOTICE

AMS4295D has been declared "STABILIZED" by AMS Committee D and will no longer be subjected to periodic reviews for currency. Users are responsible for verifying references and continued suitability of technical requirements. Newer technology may exist. AMS4295 was last reviewed and revised in February, 2006. Users of this document should refer any certification issues (e.g. exceptions listed on the certification report) to the cognizant engineering organization for their disposition. CAUTION: In many cases the purchaser is not the cognizant engineering organization (i.e. purchaser may be a sub tier supplier). AMS Committee D recommends that the following technically equivalent (e.g. properties, fit, form, function) specification be used for future procurement. This listing does not constitute authority to substitute this specification for the "STABILIZED" specification.

Temper	Equivalent Material and Specification
O, F	2219-O or - F in accordance with AMS4031; Aluminum Alloy, Sheet and Plate 6.3Cu - 0.30Mn - 0.18Zr - 0.10V - 0.06Ti (2219-O) Annealed or when specified, "As Fabricated" (2219-F)
T31/T351	2219-T31/T351 in accordance with AMS4601; Aluminum Alloy, Sheet and Plate 6.3Cu - 0.30Mn - 0.06Ti - 0.10V - 0.18Zr Solution Heat Treated, Cold Worked and Naturally Aged (2219 -T31/-T351)
T81/T851	2219-T81/T851 in accordance with AMS4599; Aluminum Alloy, Sheet and Plate 6.3Cu - 0.30Mn - 0.06Ti - 0.10V - 0.18Zr Solution and Precipitation Heat Treated (2219 -T81/-T851)
T37	2219-T37 in accordance with AMS4600; Aluminum Alloy, Sheet and Plate 6.3Cu - 0.30Mn - 0.06Ti - 0.10V - 0.18Zr Solution Heat Treated, Cold Worked (8%) and Naturally Aged (2219 -T37)
T87	2219-T87 in accordance with AMS4613; Aluminum Alloy, Sheet and Plate 6.3Cu - 0.30Mn - 0.06Ti - 0.10V - 0.18Zr Solution Heat Treated, Cold Worked (8%) and Precipitation Heat Treated (2219 -T87)

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be reaffirmed, revised, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2013 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)
Tel: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
http://www.sae.org

SAE WEB ADDRESS:

SAE values your input. To provide feedback on this Technical Report, please visit
<http://www.sae.org/technical/standards/AMS4295D>

1. SCOPE

1.1 Form

This specification covers an aluminum alloy in the form of sheet and plate.

1.2 Application

These products have been used typically for parts requiring good weldability, but usage is not limited to such application.

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.

AMS2355 Quality Assurance, Sampling and Testing, Aluminum Alloys and Magnesium Alloy, Wrought Products (Except Forging Stock), and Rolled, Forged, or Flash Welded Rings

AMS2770 Heat Treatment of Wrought Aluminum Alloy Parts

AMS2772 Heat Treatment of Aluminum Alloy Raw Materials

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

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.

ASTM B 594 Ultrasonic Inspection of Aluminum-Alloy Wrought Products for Aerospace Applications

ASTM B 666/B 666M Identification Marking of Aluminum Products

2.3 ANSI Publications

Available from American National Standards Institute, 25 West 43rd Street, New York, NY 10036-8002, Tel: 212-642-4900, www.ansi.org.

ANSI H35.2 Dimensional Tolerances for Aluminum Mill Products

ANSI H35.2M Dimensional Tolerances for Aluminum Mill Products (Metric)

3. TECHNICAL REQUIREMENTS

3.1 Composition

Shall conform to the percentages by weight shown in Table 1, determined in accordance with AMS2355.

TABLE 1 - COMPOSITION

Element	min	max
Silicon	--	0.20
Iron	--	0.30
Copper	5.8	6.8
Manganese	0.20	0.40
Magnesium	--	0.02
Zinc	--	0.10
Titanium	0.02	0.10
Vanadium	0.05	0.15
Zirconium	0.10	0.25
Other Elements, each	--	0.05
Other Elements, total	--	0.15
Aluminum	remainder	

3.2 Condition

Product shall be supplied in one of the following conditions as specified by purchaser. All heat treatment shall be performed in accordance with AMS2772.

3.2.1 Condition F

As fabricated.

3.2.2 Condition O

Annealed.

3.2.3 Condition T31/T351

Solution heat treated and stretched to produce a nominal permanent set of 2%, but not less than 1-1/2% nor more than 3%.

3.2.4 Condition T37

Solution heat treated and stretched to produce approximately 8% permanent set.

3.2.5 Condition T81/T851

Solution heat treated and stretched to produce a nominal permanent set of 2%, but not less than 1-1/2% nor more than 3%, and precipitation heat treated.

3.2.6 Condition T87

Solution heat treated, stretched to produce approximately 8% permanent set, and precipitation heat treated.

3.3 Properties

Product shall conform to the following requirements, determined in accordance with AMS2355. In addition, test specimens in the T31, T351, and T37 condition shall not be required to be tested within four days after completion of the heat treatment. If the manufacturer so elects, samples may be tested after less than four days aging, but if they fail to show the specified properties, the test samples may be discarded and additional specimens may be tested after four days aging. These specimens shall be taken from the same locations in the production lot or sample from which the prior specimens were taken.