



AEROSPACE MATERIAL SPECIFICATION

AMS4368™**REV. A**Issued 2017-07
Revised 2023-03

Superseding AMS4368

Aluminum Alloy, Discontinuously Reinforced Hot Isostatically Pressed Shapes
6061B/SiC/40p (3 µm) (T1P)

RATIONALE

AMS4368A results from a Five-Year Review and update of this specification with changes to update wording to prohibit unauthorized exceptions (3.4.2.1, 3.7, 8.8), update applicable documents (Section 2, 3.1.2, 3.3.1, 8.3), definitions (2.6.1), and ordering information (8.9), and allow the use of the immediate prior specification revision (8.7).

1. SCOPE

1.1 Form

This specification covers discontinuously reinforced aluminum alloy (DRA) metal matrix composites (MMC) made by mechanical alloying of 6061B aluminum powder and SiC particulate, which is then consolidated by Hot Isostatic Pressing (HIP) into shapes between 12 to 100 square inches (0.008 to 0.065 m²), inclusive, cross-section. Tensile property response to heat treatment has been demonstrated on samples of 1 square inch (645 mm²) maximum cross section (see 8.9).

1.2 Application

HIP'ed shapes have been used typically for structural applications requiring high static strength, fatigue strength and high elastic modulus, but usage is not limited to such applications. HIP'ed shapes may also be used as input to forging, rolling, and extrusion processes. Subsequent heat treatment to the T6P/T62P temper is required to increase strength to levels required for service (see 3.4 and 3.4.1).

2. REFERENCES

2.1 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.

2.1.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (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

AMS2750 Pyrometry

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Full document details: [SAE AMS4368A](http://www.sae.org)

For more information on this standard, visit
<https://www.sae.org/standards/content/AMS4368A/>

Documents
Document Sharing Hub

AMS3025 Polyalkylene Glycol Heat Treat Quenchant

AS7766 Terms Used in Aerospace Metals Specifications

2.1.2 ANSI Accredited Publications

Copies of these documents are available online at <https://webstore.ansi.org/>.

ANSI H35.1/H35.1M American National Standard Alloy and Temper Designation Systems for Aluminum

ANSI H35.5 American National Standard Nomenclature for Aluminum Metal Matrix Composite Materials

2.1.3 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 B311 Density of Powder Metallurgy (PM) Materials Containing Less Than Two Percent Porosity

ASTM B660 Packaging/Packing of Aluminum and Magnesium Products

ASTM B666/B666M Identification Marking of Aluminum and Magnesium Products

ASTM E8/E8M Tension Testing of Metallic Materials

2.1.4 ASME Publications

Available from ASME, P.O. Box 2900, 22 Law Drive, Fairfield, NJ 07007-2900, Tel: 800-843-2763 (U.S./Canada), 001-800-843-2763 (Mexico), 973-882-1170 (outside North America), www.asme.org.

ASME B46.1 Surface Texture (Roughness, Waviness, Lay)

2.1.5 FEPA Publications

Available from FEPA, 44 rue de la Bienfaisance 75008 Paris - France, Tel: +33 (0)1 45 81 25 90, www.fepa-abrasives.org.

FEPA-Standard 42-2 Grains of Fused Aluminium Oxide, Silicon Carbide and Other Abrasive Materials for Bonded Abrasives and for General Industrial Applications Microgrits F 230 to F 2000

2.2 Definitions

Terms used in AMS are defined in AS7766 and as follows:

2.2.1 MECHANICAL ALLOYING: A process involving cold welding and shearing of particles based on two or more components of greatly differing hardness levels to produce a product containing a distribution of the basic components.

3. TECHNICAL REQUIREMENTS

3.1 Component Materials

3.1.1 Aluminum Matrix Composition

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