



AEROSPACE MATERIAL SPECIFICATION

AMS4355™**REV. A**Issued 2015-12
Revised 2025-04

Superseding AMS4355

Aluminum Alloy
Discontinuously Reinforced Hot Isostatically Pressed Shapes
2124A/SiC/25p (3 µm) (T1P)

RATIONALE

AMS4355A results from a Five-Year Review and update of this specification with changes to prohibit unauthorized exceptions (see 3.4.1.1, 3.7, 4.4.1, 5.1.1, and 8.11), relocate Definitions (see 2.6), update Form (see 1.1), Applicable Documents (see Section 2, 3.2.1, 3.3.1, and 8.3), and thermal-processing note (see 8.6), and allow the use of the immediate prior specification revision (see 8.10).

1. SCOPE

1.1 Form

This specification covers discontinuously reinforced aluminum alloy (DRA) metal matrix composites (MMC) made by mechanical alloying of the 2124A powder and SiC particulate, which is then consolidated by hot isostatic pressing (HIP) into shapes less than 62 square inches (0.04 m²) in cross-sectional area (see 8.12).

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 and extrusion processes.

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.

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Documents

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2.1 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

AS7766 Terms Used in Aerospace Metals Specifications

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 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

2.3 ANSI Accredited Publications

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

ANSI H35.5 Nomenclature System For Aluminum Metal Matrix Composite Materials

2.4 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, Surface Roughness, Waviness and Lay

ASME Y14.5 Dimensioning and Tolerancing

2.5 Federation of the European Producers of Abrasives (FEPA) Publications

Available from Federation of European Producers of Abrasives, 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 applications Microgrits F 230 to F 2000

2.6 Definitions

Terms used in AMS are defined in AS7766.

3. TECHNICAL REQUIREMENTS

3.1 Aluminum Matrix Composition

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