The Engineering Society For Advancing Mobility Land Sea Air and Space®
INTERNATIONAL
400 Commonwealth Drive, Warrendale, PA 15096-0001

AEROSPACE MATERIAL SPECIFICATION

SAE AMS 2431A

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Superseding AMS 2431

Submitted for recognition as an American National Standard

PEENING MEDIA
General Requirements

1. SCOPE:

1.1 This specification and its supplementary detail specifications cover the requirements for media to be used in controlled shot peening of metal parts.

1.2 Reference to AMS 2431 with the appropriate slash number on a purchase order constitutes a requirement to conform to the applicable specification in 2.1.

2. APPLICABLE DOCUMENTS:

The following publications form a part of this specification to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order.

2.1 SAE Publications:

(R) Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

AMS 2431/1 Peening Media, Cast Steel Shot, Regular Hardness (45 to 52 HRC)
AMS 2431/2 Peening Media, Cast Steel Shot, High Hardness (55 to 62 HRC)
AMS 2431/3 Peening Media, Conditioned Carbon Steel Cut Wire Shot, Regular Hardness (45 to 52 HRC)
AMS 2431/4 Peening Media, Conditioned Stainless Steel Cut Wire Shot
AMS 2431/5 Peening Media, Peening Balls
AMS 2431/6 Peening Media, Glass Shot
AMS 2431/7 Peening Media, Ceramic Shot
AMS 2431/8 Peening Media, Conditioned Carbon Steel Cut Wire Shot, High Hardness (55 to 62 HRC)

2.1 (Continued):

SAE J441 Cut Wire Shot
SAE J444 Cast Shot and Grit Size Specifications for Peening and Cleaning
SAE J445 Metallic Shot and Grit Mechanical Testing
SAE J827 High Carbon Cast Steel Shot
SAE J1173 Size Classification and Characteristics of Glass Beads for Peening
SAE J1830 Size Classification and Characteristics of Ceramic Shot for Peening

2.2 ASTM Publications:

(R) Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959.

ASTM B 214 Sieve Analysis of Granular Metal Powders
ASTM C 169 Chemical Analysis of Soda-Lime and Borosilicate Glass
ASTM E 11 Wire-Cloth Sieves for Testing Purposes
ASTM E 18 Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials
ASTM E 140 Hardness Conversion Tables for Metals (Relationship Between Brinell Hardness, Vickers Hardness, Rockwell Hardness, Rockwell Superficial Hardness, and Knoop Hardness)
ASTM E 350 Chemical Analysis of Carbon Steel, Low-Alloy Steel, Silicon Electrical Steel, Ingot Iron, and Wrought Iron
ASTM E 353 Chemical Analysis of Stainless, Heat-Resisting, Maraging, and Other Similar Chromium-Nickel-Iron Alloys
ASTM E 384 Microhardness of Materials

2.3 U.S. Government Publications:

(R) Available from DODSSP, Subscription Services Desk, Building 4D, 700 Robbins Avenue, Philadelphia, PA 19111-5094.

MIL-STD-2073-1 DOD Materiel, Procedures for Development and Application of Packaging Requirements

3. TECHNICAL REQUIREMENTS:

3.1 Detail Specification:

(R) The requirements for a specific product shall consist of all requirements specified herein in addition to requirements specified in the applicable detail specification. In case of conflict between requirements of this basic specification and the applicable detail specification, requirements of the detail specification shall govern.

3.2 Quality:

Peening media, as received by purchaser, shall be uniform in quality and condition, clean, and free from foreign materials and from imperfections detrimental to usage of the peening media.

3.3 Test Methods:

3.3.1 Composition: Shall be determined in accordance with ASTM C 169, ASTM E 350, or ASTM E 353.

3.3.2 (R) Hardness: Shall be determined in accordance with ASTM E 18 or ASTM E 384 for metallic shot and as described in the applicable detail specification for nonmetallic peening media. Conversion to Rockwell C values shall be in accordance with ASTM E 140.

3.3.3 Quality: Shall be determined visually and in accordance with the applicable detail specification(s).

3.3.4 (R) Size: Shall be determined in accordance with ASTM E 11, ASTM B 214, and the applicable detail specification.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection:

The supplier of peening media shall supply all samples for supplier's tests and shall be responsible for performing all required tests. Purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the peening media conforms to the requirements of this specification.

4.2 Classification of Tests:

All technical requirements are acceptance tests and shall be performed on each lot.

4.3 (R) Sampling and Testing:

Shall be in accordance with the applicable detail specification; a lot shall consist of peening media of the same nominal alloy or chemical composition, condition, size, and hardness. If production is continuous, a lot shall be the product of not more than eight hours. Alternatively, Statistical Process Control methods may be used to monitor the quality of the product so that it meets the requirements of the applicable detail specification.

4.4 (R) Reports:

The supplier of peening media shall furnish with each shipment a report stating that the media conforms to the size distribution, number of marginal/defective shapes, density, chemical composition, hardness, and other technical requirements and the applicable detail specification. This report shall include the purchase order number, lot number, code letters, size, quantity, and AMS 2431A, including the applicable detail specification number.

4.5 Records:

All manufacturing records and all records of testing and inspection shall be retained and available for inspection for not less than two years after manufacture. The records shall contain all data, including statistical process control reports, necessary to verify conformance to the requirements of this specification and the applicable detail specification.

5. PREPARATION FOR DELIVERY:

5.1 Identification:

Each container of peening media shall be permanently and legibly marked with not less than the following information:

Manufacturer and Address
Description of peening media (cast steel, cut wire, etc)
Peening media hardness, if applicable (equivalent HRC for steel shot)
Specification number, code, and size
Lot number
Example of line 4: "AMS 2431/1A - ASR170" (See Table 1).

(R) TABLE 1 - Peening Media and Identification Codes

	Description	Code
AMS 2431/1	Cast Steel Shota, Regular Hardness (45 to 52 HRC)	ASR
AMS 2431/2	Cast Steel Shot, High Hardness (55 to 62 HRC)	ASH
AMS 2431/3	Conditioned Carbon Steel Cut Wire Shot, Regular Hardness (45 to 52 HRC)	AWCR
AMS 2431/4	Conditioned Stainless Steel Cut Wire Shot	AWS
AMS 2431/5	Peening Balls	APB
AMS 2431/6	Glass Shot	AGB
AMS 2431/7	Ceramic Shot	AZB
AMS 2431/8	Conditioned Carbon Steel Cut Wire Shot, High Hardness (55 to 62 HRC)	AWCH