



AEROSPACE MATERIAL SPECIFICATION

AMS2431™**REV. E**Issued 1998-04
Revised 2023-04

Superseding AMS2431D

Peening Media, General Requirements

RATIONALE

AMS2431E is the result of a Five-Year Review and update of this specification with the addition of AMS2431/9 to Table 1 and that the quality characteristics be visually inspected (3.2).

1. SCOPE

- 1.1 This specification and its detail slash specifications cover the requirements for media to be used in controlled shot peening of metal parts.
- 1.2 Reference to AMS2431 with the appropriate slash number on a purchase order constitutes a requirement to conform to the applicable specification in 2.1.1.

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 +1 724-776-4970 (outside USA); www.sae.org.

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| AMS2431/1 | Peening Media (ASR), Cast Steel Shot, Regular Hardness (45 to 52 HRC) |
| AMS2431/2 | Peening Media (ASH), Cast Steel Shot, High Hardness (55 to 62 HRC) |
| AMS2431/3 | Peening Media, Conditioned Carbon Steel Cut Wire Shot, Regular Hardness (45 to 52 HRC) (AWCR) |
| AMS2431/4 | Peening Media, Conditioned Stainless Steel Cut Wire Shot (AWS) |
| AMS2431/5 | Peening Media, Hardened Steel Peening Balls |
| AMS2431/6 | Peening Media, Glass Shot |
| AMS2431/7 | Peening Media, Ceramic Shot |

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SAE WEB ADDRESS:

For more information on this standard, visit
<https://www.sae.org/standards/content/AMS2431E/>

AMS2431/8	Peening Media (AWCH), Conditioned Carbon Steel Cut Wire Shot, High Hardness (55 to 62 HRC)
AMS2431/9	Peening Media, Ceramic Shot, High Density
AS7766	Terms Used in Aerospace Metals Specifications
SAE J445	Metallic Shot and Grit Mechanical Testing

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 B214	Sieve Analysis of Metal Powders
ASTM C169	Chemical Analysis of Soda-Lime and Borosilicate Glass
ASTM E11	Woven Wire Test Sieve Cloth and Test Sieves
ASTM E18	Rockwell Hardness of Metallic Materials
ASTM E29	Using Significant Digits in Test Data to Determine Conformance with Specifications
ASTM E140	Standard Hardness Conversion Tables for Metals Relationship Among Brinell Hardness, Vickers Hardness, Rockwell Hardness, Superficial Hardness, Knoop Hardness, Scleroscope Hardness, and Leeb Hardness
ASTM E353	Chemical Analysis of Stainless, Heat-Resisting, Maraging, and Other Similar Chromium-Nickel-Iron Alloys
ASTM E384	Microindentation Hardness of Materials
ASTM E415	Analysis of Carbon and Low-Alloy Steel by Spark Atomic Emission Spectrometry
ASTM E1019	Determination of Carbon, Sulfur, Nitrogen, and Oxygen in Steel, Iron, Nickel, and Cobalt Alloys by Various Combustion and Gas Fusion Techniques
ASTM E1086	Analysis of Austenitic Stainless Steel by Spark Atomic Emission Spectrometry

2.3 ISO Publications

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

ISO 3310-1	Test sieves - Technical requirements and testing - Part 1: Test sieves of metal wire cloth
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2.4 Definitions

Terms used in AMS2431 are defined in AS7766 and as follows:

2.4.1 PARTS

Finished or semifinished metal parts.

2.4.2 PEENING MEDIA

Spherical or quasi-spherical material used in the controlled shot peening process. See Table 1 for descriptions, specifications, and codes.

3. TECHNICAL REQUIREMENTS

3.1 Detail Specification

The requirements for a specific product shall consist of all requirements specified herein in addition to requirements specified in the applicable detail slash specification shown in Table 1. In case of conflict between requirements of this base specification and the applicable detail slash specification, requirements of the detail slash specification shall govern.

Table 1 - Peening media and identification codes

Specification	Description	Code
AMS2431/1	Cast Steel Shot, Regular Hardness (45 to 52 HRC)	ASR
AMS2431/2	Cast Steel Shot, High Hardness (55 to 62 HRC)	ASH
AMS2431/3	Conditioned Carbon Steel Cut Wire Shot, Regular Hardness (45 to 52 HRC)	AWCR
AMS2431/4	Conditioned Stainless-Steel Cut Wire Shot	AWS
AMS2431/5	Peening Balls	APB
AMS2431/6	Glass Shot	AGB
AMS2431/7	Ceramic Shot	AZB
AMS2431/8	Conditioned Carbon Steel Cut Wire Shot, High Hardness (55 to 62 HRC)	AWCH
AMS2431/9	Ceramic Shot, High Density	HDC

3.2 Quality

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

3.3 Test Methods

- 3.3.1 Composition shall be determined in accordance with ASTM C169, ASTM E353, ASTM E415, ASTM E1019, or ASTM E1086 as applicable for the type of media.
- 3.3.2 Hardness shall be determined in accordance with ASTM E18 or ASTM E384 for metallic shot and as described in the applicable detail slash specification for nonmetallic peening media. Conversion to Rockwell C values shall be in accordance with ASTM E140.
- 3.3.3 Quality shall be determined visually and in accordance with the applicable detail slash specification.
- 3.3.4 Size shall be determined in accordance with ASTM E11 or ISO 3310-1, ASTM B214, and the applicable detail slash 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 the performance of all required tests. The purchaser reserves the right to sample and to perform any confirmatory testing deemed necessary to ensure that the peening media conforms to specified requirements.

4.2 Classification of Tests

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

4.3 Sampling for Testing

Sampling shall be in accordance with the applicable detail specification; a lot shall consist of peening media of the same nominal alloy or composition, condition, size, and hardness. If production is continuous, a lot shall be the product of not more than 8 hours of production. 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 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 AMS2431E, including the applicable detail specification number.

For purposes of determining conformance with this specification and those listed in Section 2, an observed value or a calculated value shall be rounded "to the nearest unit" in the last right-hand digit used in expressing the specification maximum or minimum limit in accordance with the rounding method of ASTM E29.

4.5 Records

All manufacturing records and all records of testing and inspection shall be retained and available for inspection for not less than 2 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)

Lot number

Specification number, code, and size. Example: "AMS2431/1C - ASR170" (see Table 1)

5.2 Packaging

Peening media shall be prepared for shipment in accordance with commercial practice and in compliance with applicable rules and regulations pertaining to the handling, packaging, and transportation of the peening media to ensure carrier acceptance and safe delivery.

5.2.1 Packaging containers shall be tightly sealed and impermeable to moisture to prevent deterioration of product.

6. ACKNOWLEDGMENT

A supplier shall mention this specification number and its revision letter in all quotations and when acknowledging purchase orders.

7. REJECTIONS

Peening media not conforming to this specification or the applicable detail specification, or to modifications authorized by the purchaser, will be subject to rejection.