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AEROSPACE MATERIAL SPECIFICATION

SAE AMS 2432A

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Submitted for recognition as an American National Standard

SHOT PEENING, COMPUTER MONITORED

1. SCOPE:

1.1 Purpose:

This specification establishes the engineering requirements for computer monitored peening of surfaces of parts.

1.2 Application:

This procedure has been used typically to induce, through cold working, a surface layer that is residually stressed in compression thereby enhancing fatigue performance and resistance to stress-corrosion cracking, corrosion fatigue, fretting fatigue, spalling, and galling and to provide a means by which the shot peening process can be performed on parts which rely on the benefits provided by shot peening in order to satisfy material component design, but usage is not limited to such applications.

1.3 Shot peening in conformance with this specification requires that locations of intensity verification (Almen test strip locations) be shown on the drawing.

1.4 Processes such as tumbling of parts in peening, slurry peening, peen forming and straightening, peening for prevention of intergranular corrosion, and peening to produce a surface texture are recognized but their requirements are not covered.

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:

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

AMS 2431 Peening Media
SAE J442 Test Strip, Holder and Gage for Shot Peening

2.2 ASTM Publications:

Available from ASTM, 1916 Race Street, Philadelphia, PA 19103-1187.

ASTM E 18 Rockwell Hardness and Rockwell Superficial Hardness of Metallic Materials

2.3 U.S. Government Publications:

Available from Standardization Documents Order 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 General:

3.1.1 Areas Designated to be Peened: Parts shall be peened on all surfaces except peening is optional on the following: surfaces of holes and apertures under 0.125 inch (3.18 mm) diameter or width; surfaces of blind holes and recesses under 0.5 inch (13 mm) in diameter or width, if depth exceeds diameter or width or is required to be ricochet peened.

3.1.1.1 Areas designated not to be peened shall be masked from the peening stream. (See 8.3.1)

3.1.1.2 Thin sections under 0.090 inch (2.29 mm) in nominal thickness shall not be peened unless specifically required on the drawing. When peening is required, shot size, intensity, and coverage shall be specified on the drawing.

3.1.1.3 Peening coverage is optional in areas where peening is neither specified nor prohibited.

3.1.2 Tolerance: When the masking tolerance is not indicated on the drawing, tolerances used on dimensions shall be plus 0, minus 0.062 inch (1.57 mm). Masking shall be permanent and reusable except expendable masking may be used for preproduction or development parts when approved by the cognizant engineering organization (See 8.2.3).

3.1.3 Intensity Verification Locations: Shall be as indicated on the drawing; when not specified on the drawing, locations shall be as established by the cognizant engineering organization.

3.2 Material and Equipment:

3.2.1 Peening media shall conform to AMS 2431.

3.2.2 Prior to use, cast steel shot shall be conditioned to remove any rust. Peening for not less than five shot turnover cycles is recommended.

3.2.3 Measuring Instruments: Almen gages, scales, air pressure gages, tachometers, etc, used for controlling shop peening, shall be calibrated against instruments whose calibration is traceable to National Institute of Standards and Technology (NIST).

3.2.4 Almen test strips used for intensity verification shall conform to SAE J442 except thickness and flatness tolerance shall be ± 0.0005 inch (±0.013 mm) and hardness shall be 73.0 to 74.5 HRA for N strips and 45 to 48 HRC for other strips. Hardness shall be measured in accordance with ASTM E 18 at approximately 1/2 inch (12.7 mm) from either end on the longitudinal center line of a flat side, using Rockwell "C" scale, or equivalent, for A and C strips. For N strips, the Rockwell "A" scale, or equivalent, shall be used.

3.2.4.1 (R) Gages for determining flatness and arc height of Almen test strips shall conform to the requirements of SAE J442 except that the gages shall have digital readout and have an accuracy of ±0.0001 inch (±0.0025 mm). Almen gages shall be zeroed daily using a flat gage block.

3.2.4.2 Masked or Subsize Test Strips: In locations where standard test strips cannot be placed to accurately reflect the peening intensity, masked or subsize test strips may be used. Masked or subsize test strips shall conform to all requirements of 3.2.4 except for length and width of exposed area. Location of support points on gages for measuring subsize test strips shall be approved by the cognizant engineering organization.

3.2.4.3 Reuse of Almen test strips is not permitted.

3.2.4.4 Almen Strip Fixture: Either a scrap part or a representative non-adjustable fixture shall be fitted with test strip support blocks (See 3.1.3). Support blocks used to hold Almen test strips during tests to establish specified peening intensity shall conform to SAE J442 and shall be clamped or welded on the Almen test strip fixture. If support blocks for masked or subsize test strips are used, they shall be approved by the cognizant engineering organization. The Almen strip fixture shall be oriented to the peening shot stream and rotated or translated in the same manner as the part. The design of the Almen strip fixture shall be approved by the cognizant engineering organization. It shall be numbered and recorded in the procedure sheet (See 3.7.2.1) and shall be used for all subsequent Almen intensity verifications.

3.2.4.5 When masked or subsize test strips are used to control peening intensity on parts, the relationship between the peening intensity on the masked or subsize test strip and that on the standard test strip shall be established. The intensity thus established for the masked or subsize test strip shall be used for control of the peening intensity on parts.

3.2.5 Peening Machines: Shall be equipped with computers for continuously monitoring and recording (in hard copy) the parameters shown in Table 1 within the tolerance indicated.

TABLE 1 - Parameters for Peening Machines

Paragraph	Parameter	Units	Process Tolerance Plus or Minus
3.2.5.1	Shot Flow (through each nozzle)	Pounds/minute (kg/minute)	5%
3.2.5.2	Air Pressure (through each nozzle)	psi (kPa)	5%
3.2.5.3	Wheel Speed	RPM	1%
3.2.5.4	Air Flow	Cubic feet/minute (L/minute)	5%
3.2.5.5	Nozzle and/or Wheel Translation Speed	Inch/minute (mm/minute)	0.1 inch (2.5 mm)/minute
3.2.5.6	Nozzle and/or Wheel Shut Down	Seconds	1
3.2.5.7	Turntable Speed	RPM	2%
3.2.5.8	Part Speed	RPM	2%
3.2.5.9	Conveyor Speed	Inch/minute (mm/minute)	1
3.2.5.10	Peening Cycle Time	Seconds	1
3.2.5.11	Nozzle/Wheel Position	Inches/degree (mm/degree)	0.062 inch (1.57 mm)/ 5 degrees
3.2.5.12	Table Indexing	Inches/degree (mm/degree)	0.062 inch (1.57 mm)/ 5 degrees

3.2.6 (R) The peening system shall be capable of interrupting the peening cycle within one second, when detected tolerances for shot flow (3.2.5.1), air pressure (3.2.5.2), wheel speed (3.2.5.3), air flow (3.2.5.4), nozzle and/or wheel translation speed (3.2.5.5), turntable speed (3.2.5.7), part speed (3.2.5.8), or conveyor speed (3.2.5.9) are exceeded. The peening system shall also retain in memory and print out any abort details for the parameters listed in 3.2.5 and be able to resume operations to complete the balance of the process cycle, from the position of shut-down, when the out-of-tolerance condition has been corrected. Parts processed during an aborted cycle shall be so identified by the processor.

3.2.7 (R) Peening machine shall be equipped with shot screening system and shot shape control mechanisms capable of continuously maintaining the quality of the peening media in the machine to no more than 2% broken or deformed pieces (by count). Table 5 may be used to determine the maximum number of allowable broken particles (2%).

3.2.8 (R) If medium size and intensity are not specified, medium size and intensity shall conform to the requirements of Table 3 and Table 4. If medium type is not specified refer to 8.4 for guidance in the selection of medium.

3.3 Prepeening Treatment:

3.3.1 Dimensions and Surface Finishes: Shall be as specified by the drawing prior to shot peening, unless otherwise noted.

3.3.2 All straightening and forming shall be completed prior to peening.

3.3.3 Heat treatment that requires temperatures above those in 8.3.3 shall be completed prior to peening.

3.3.4 All machining of areas to be peened shall be completed prior to peening (See 8.3.1). All burrs shall be removed and all sharp edges and external corners shall be radiused or chamfered.

3.3.5 Nondestructive inspection such as magnetic particle, fluorescent penetrant, ultrasonic, or other flaw or crack detection processes, when required, shall be completed prior to peening.

3.3.6 Parts which exhibit corrosion or mechanical damage shall not be peened unless the noted condition is acceptable to the cognizant engineering organization.

3.3.7 Cleaning, prior to peening, shall be accomplished by vapor degreasing, emulsion degreasing, solvent wiping, warm solvent spray, or water base, nonflammable product to remove contamination such as oil, grease, or paint.

3.3.7.1 Titanium alloys shall not be cleaned in solvents containing halogenated compounds.

3.4 Procedure:

3.4.1 A fillet radius shall be peened with shot, the diameter of which does not exceed one-half the radius. If this requires a shot size that is smaller than that shown in Table 3 and Table 4, the fillet radius shall be peened in a separate setup subsequent to the one required for general peening of the part. An intensity for the fillet radius, compatible with the smaller shot size, shall be established by the cognizant engineering organization. No additional masking of previously peened areas is required. For slots or other apertures, through which shot must pass to peen shielded critical areas, the nominal shot diameter shall not be greater than one-quarter the diameter or width of such aperture.

3.4.2 Holes larger than 0.125 inch (3.18 mm) diameter (See 3.1.1) shall be peened to the requirements of Table 3 and Table 4, utilizing internal peening setups. No internal setups are required if the hole diameter is equal to or larger than half the hole depth, provided that the hole is open to direct impingement from both ends. If the hole diameter is equal to or larger than the hole depth and the hole is accessible to direct impingement from one end only, external peening with the shot size and intensity specified for the actual part is then acceptable, provided that the hole receives complete coverage.

3.4.3 For internal peening, the part shall be positioned so as to ensure free exit of spent shot.

3.4.4 When two or more thicknesses are present on the same part and one is over 0.375 inch (9.52 mm) and the other is equal to or less than 0.375 inch (9.52 mm) (See Table 3 and Table 4), the part shall be peened as follows.

3.4.4.1 The thicker area shall be peened using the correct shot size and intensity for that thickness; the thinner areas shall be masked at any outside corner where the change of cross-section occurs. Do not mask on an inside radius. If the change of cross-section is gradual, the peening intensity and coverage shall fade within 2.0 inches (51 mm) into the thinner area.

3.4.4.2 The thinner areas shall next be peened to the correct intensity and shot size with no masking of thicker sections, except as required by the drawing. Complete coverage with this second shot size and intensity is required for not less than a 2.0 inch (51 mm) overlap into the area previously peened.

3.4.5 Loads, applied to the part during peening, shall be as specified by the cognizant engineering organization.

3.5 Preproduction Setup Verification:

3.5.1 Saturation Curve: Intensity shall be determined by exposing individual Almen strips in a setup fixture (See 3.2.4) for increasing time periods and plotting the results as a saturation curve, represented in Figure 1 (See 8.2). Not less than four points, other than zero, shall be required to adequately define the saturation curve.

3.5.1.1 During procedure development for a new part in a given machine, a complete saturation curve shall be developed for each intensity verification location and the curves shall form part of the peening procedure sheet. The critical peening parameters, confirmed by the saturation curves and coverage determination, shall be entered into the computer program for the part. (See 3.7.2).

3.5.2 Coverage: Unless otherwise designated on the part engineering drawing, 100% part coverage is required. (See 8.2.2).

3.5.3 Production Peening Setups: Shall utilize the computer pre-program and the procedure sheet to designate the machine and all the machine settings, fixtures, and locations of part and fixtures. Intensity verification using test strips is required by peening a single set of test strips after all monitored parameters, fixtures and locations match the computer pre-program and the procedure sheet. If any strips do not fall within required intensity range, the setup shall be corrected and a new set of strips shall be peened.

3.5.4 Nozzle Holding Fixture: When an air nozzle peening machine is used, each nozzle shall be held in a fixture so that the angle of impingement and stand-off distance conforms to the procedure sheet during peening. The nozzle holding fixture shall be numbered and recorded on the procedure sheet.

3.5.5 Control Cage Setting: When a centrifugal wheel machine is used, the control cage, which regulates the position and angle of the maximum intensity zone generated by the wheel, shall be set in respect to the part location, so that the angle of impingement of the maximum intensity zone shall remain constant to procedure sheet requirements. A reference point on the impeller cage position indicator shall be part of the wheel system. The position of the control cage shall be recorded on the procedure sheet.

3.5.6 Part Holding Fixture: The part shall be held in a fixture designed to rotate and/or translate the part on its axis through the shot stream. The fixture shall be numbered and recorded on the peening procedure sheet (See 3.7.2 and 3.7.2.1).

3.6 Post-Peening Treatment:

3.6.1 After peening and removal of protective masking, all shot and fragments thereof shall be removed from surfaces of parts. Only methods which will not erode or scratch surfaces shall be used.

3.6.2 (R) When surface finish or dimensions after peening do not meet drawing requirements, they may be corrected by a second peening operation at a lower intensity. Alternatively, unless material removal is prohibited, they may be corrected by one or more of the following: polishing, lapping, honing, or sanding. Grinding shall not be used unless approved by the cognizant engineering organization (See 8.2.3).

3.6.2.1 For parts with a specified minimum tensile strength of 220 ksi (1517 MPa) and over, no more than the equivalent of 5% of the specified minimum "A" intensity or equivalent "N" or "C" intensity (See 8.5) shall be removed from the surface.

3.6.2.2 For other parts, no more than the equivalent of 10% of the specified minimum "A" intensity or equivalent "N" or "C" intensity (See 8.5) shall be removed from the surfaces.

3.6.3 Chemical Cleaning:

3.6.3.1 When required by purchaser, parts, other than those made from alloy or carbon steel, which have been peened with carbon steel shot or with any media in an unlined steel cabinet shall be decontaminated as follows:

3.6.3.1.1 Corrosion-resistant steel and titanium alloy parts shall be decontaminated in a 20 to 50% by volume nitric acid solution at 140 °F ± 5 (60 °C ± 2) for 15 to 30 minutes.

3.6.3.1.2 Aluminum alloy parts shall be decontaminated in a 50% ± 5 by volume nitric acid solution at ambient temperature or 20% ± 2 by volume nitric acid solution at 140 °F ± 5 (60 °C ± 3).

3.6.3.1.2.1 (R) After decontamination, parts shall be rinsed in hot [140 °F (60 °C)], agitated water and dried.

3.7 Process Control:

3.7.1 The setup shall be qualified by placing the Almen test strip setup fixture in the machine in the identical orientation to the shot stream to which the part shall be exposed. Air pressures or wheel speeds shall be adjusted to yield designated intensities. Nozzle positions or wheel cages shall be set so that shot streams have an angle of impingement between 90 and 45 degrees to the Almen strip locations.

3.7.2 Peening Procedure Sheet: Processor shall establish for each part number a procedure sheet showing process parameters which will be used for peening production parts. The procedure sheet shall be approved by the cognizant engineering organization prior to initial production peening and prior to peening in accordance with a revised procedure.

3.7.2.1 Procedure sheets shall include a sketch of the machine setup showing nozzle placement and/or relation of wheel(s) to the part and the following information:

Procedure sheet number and approval date
Part number
Machine identification number (model and serial number)
Number of nozzles or wheels
Nozzle type: gravity, pressure, or suction
Fixture identification numbers (Almen strip fixture, part fixture, nozzle fixture, masking fixture)
Size of nozzles or wheels
Shot flow rate for each nozzle or wheel
Nozzle air orifice diameter
Nozzle or wheel translation speed, direction and travel relative to part
Control cage position for each wheel
Nozzle or wheel angles of impingement
Nozzle or wheel-to-part distance
Air flow of each nozzle
Air pressure or wheel speed in rpm for each nozzle or wheel
Size and material of shot in accordance with AMS 2431
Speed, direction, and travel of part in translation and rotation
Areas to be masked including permissible areas for expendable maskant
Placement of test strips on intensity verification fixture in relation to the actual part
Saturation curve for each intensity verification point
Time of exposure to the shot stream
Sequence of nozzle or wheel shut down (if required)
Intensity
Coverage
Prepeening cleaning method (See 3.3.7)
Postpeening cleaning method (See 3.6.3)
Corrosion protection method (See 5.1)

3.8 Peening Source Qualification:

Facilities performing computer controlled shot peening in accordance with this specification shall be approved by the cognizant quality assurance organization.

4. QUALITY ASSURANCE PROVISIONS:

4.1 Responsibility for Inspection and Process Control:

The supplier shall be responsible for the performance of all inspection specified herein. The supplier may use his facility or any suitable commercial laboratory. Purchaser reserves the right to perform any testing deemed necessary to ensure that processing conformed to the requirements of this specification.

4.2 Classification of Tests:

Tests for all technical requirements are acceptance tests and shall be performed in accordance with 4.3.1, 4.3.2, and 4.3.3 on each lot; a lot shall consist of a group of similar parts of the same part number that are processed continuously using the same machine setup.

4.2.1 For direct U.S. Military Procurement: Substantiating test data and, when requested, preproduction test material shall be submitted to the cognizant agency as directed by the procuring activity, contracting officer, or request for procurement.

4.3 Sampling and Testing:

Shall be as follows:

4.3.1 Shot Size and Uniformity: At least one verification of shot size and uniformity shall be made on samples taken from a nozzle or wheel. The samples shall be taken immediately before and after each production run, and after eight hours of production on long runs, when using cast or cut wire steel shot. Ceramic shot shall be similarly verified at least every four hours of production and before and after each production run. Glass bead shot shall be similarly verified at least every two hours of production and before and after each production run. Media samples shall meet requirements of AMS 2431 except broken shot count shall conform to 3.2.7.

4.3.2 Intensity Verification: All strips shall be tested for conformance to hardness, thickness, and flatness requirements of 3.2.3.

4.3.2.1 At least one intensity determination for all required locations shall be made immediately before and after each production run and at least every four hours of production.

4.3.3 Coverage Verification: Peened surfaces shall be examined for complete (100%) coverage on the first and last piece of a lot and on one piece at least after every four hours of continuous operation. Either of the following methods shall be used except as specified in 4.3.3.3.

4.3.3.1 10X Magnification: Peened surfaces shall be inspected visually with the aid of a 10X, or higher, magnifier to determine that the surface has been completely covered with overlapping dimples.

4.3.3.2 Impact Sensitive Fluorescent Coatings: Coatings, when used, shall be in accordance with manufacturer's recommendations and shall be approved by the cognizant engineering organization.

4.3.3.3 For aluminum parts having large plan form surfaces (such as wing-skins), the areas outside of the Almen strip locations may be examined with the unaided eye.

4.3.3.4 All coverage inspection shall be performed prior to any material removal.

4.4 Preproduction Approval:

The process and control procedures and/or sample peened parts for each part number shall be approved by the cognizant engineering organization, unless such approval be waived by the cognizant engineering organization.

4.5 Records:

Procedure sheets, work sheets, computer records, test, and inspection records shall be kept available for not less than five years. The records shall contain all data necessary to verify conformance to the requirements of this specification.

4.6 Reports:

Results of Almen test strip measurements by location and the actual Almen test strips used to verify intensity shall accompany each lot of parts. The Almen test strips shall be permanently marked with their location on the Almen test fixture by a method which will not change intensity measurements.

5. PREPARATION FOR DELIVERY:

5.1 All peened parts shall be preserved and wrapped or packaged to ensure protection from corrosion and damage during handling, transportation, and storage.

5.2 (R) For direct U.S. Military procurement, packaging shall be in accordance with MIL-STD-2073-1, Commercial Level, unless Level A is specified in the request for procurement.

6. ACKNOWLEDGMENT:

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

7. REJECTIONS:

Parts on which peening does not conform to this specification, or to modifications authorized by purchaser, will be subject to rejection.

8. NOTES:

8.1 Marginal Indicia:

The (R) symbol is used to indicate technical changes from the previous issue of this specification.

8.2 Definitions:

The saturation point is determined from a saturation curve. It is the minimum duration of peening which, when doubled, increases the Almen strip height by not greater than 10 percent. Arc height at saturation should correspond to arc height required for the part. The re-use of peened test strips is not permitted. (See Figure 1).

8.2.1 100% coverage is defined as complete obliteration of the original surface finish by overlapping dimples.

8.2.1.1 Parts that are significantly softer (e.g. aluminum) than the Almen strips will become fully covered in much less time than that required for the test strips to attain saturation. Conversely, much harder parts will require increased exposure.

8.2.2 Peening exposure time is determined by the time required to obtain 100% coverage of the part.

8.2.3 Cognizant is the term applied to the engineering organization responsible for the design of the parts, its allied quality assurance organization, or a designee of these organizations.

8.3 Design Recommendations:

8.3.1 In lieu of masking, designs may permit excess material to be left on surfaces where peening is prohibited so that it may be removed by subsequent machining; however, the residual stress distribution in the boundary zone will be altered.

8.3.2 The shot peening parameters shown in Table 3 and Table 4 may not be ideal for a specific part. It is, therefore, recommended that tests be conducted to optimize the shot peening parameters. The testing should include various shot sizes, types, and peening intensities. The optimum parameters should then be required by the drawing.

8.3.3 To preclude reduction of compressive stresses, temperature to which peened parts are subjected in subsequent processing should not exceed the following:

Alloy Steels	475 °F (246 °C)
Corrosion-Resistant Steels	750 °F (399 °C)
Aluminum Alloys	200 °F (93 °C)
Titanium Alloys	600 °F (316 °C)
Magnesium Alloys	200 °F (93 °C)
Nickel and Cobalt Alloys	1000 °F (538 °C)

8.3.3.1 Other maximum temperatures may be applicable for other reasons, e.g. depreciation of strength or corrosion resistance.

8.3.4 When requiring shot peening of sections under 0.090 inch (2.29 mm), design should utilize peening parameters which preclude high core tensile stresses.

8.3.4.1 The peening intensity used for thin sections should be such that the cross-sectional area under compressive stress should not exceed 10% of the total cross-sectional area.

8.3.4.2 Table 2 illustrates typical depths of compressive stress for commonly used materials:

TABLE 2 - Depths of Compressive Stress

Material	Intensity 8N Inch	Intensity 8N mm	Intensity 8A Inch	Intensity 8A mm	Intensity 8C Inch	Intensity 8C mm
Aluminum	0.003	0.08	0.010	0.25	0.027	0.69
Titanium	0.002	0.05	0.007	0.18	0.018	0.46
Steel under 200 ksi (1379 MPa) tensile strength	0.003	0.08	0.008	0.20	0.025	0.64
Steel 200 ksi (1379 MPa) tensile strength and over	0.002	0.05	0.005	0.13	0.015	0.38
Nickel alloys	0.002	0.05	0.006	0.15	0.020	0.51

8.4 (R) When the type of peening medium is not specified, the following selection criteria should be used:

2431/1 ASR Cast Steel Shot, Regular
Most commonly used media.

2431/2 ASH Cast Steel Shot, Hard
Used when part hardness exceeds 50 HRC to produce a higher magnitude compressive stress than regular cast steel shot. In such applications, it will break down faster than regular cast steel shot.

AMS 2431/3 AWC Conditioned Carbon Steel Cut Wire Shot
Superior breakdown resistance than either type of cast steel shot. It has a higher cost than cast steel shot.

2431/4 AWS Conditioned Stainless Steel Cut Wire Shot
Superior breakdown resistance to cast steel shot and is selected when passivation and/or chemical decontamination of nonferrous shot peened parts is not desired. It has a higher cost than cast steel and carbon steel cut wire shot.

2431/5 APB Peening Balls
Superior breakdown resistance to cast steel shot. Superior sphericity over all types of medium. It has a higher cost than cast steel, conditioned carbon steel cut wire, and conditioned stainless cut wire shot.

AMS 2431/6 AGB Glass Shot
When new it provides less degradation of smooth surfaces and reduces roughness of rougher surfaces. Eliminates necessity for post-peening passivation, or other chemical decontamination, of parts made from stainless steel and nonferrous materials. Higher breakdown rate than all other types and, therefore, not recommended for high peening intensities.

2431/7 AZB Ceramic
Used as an alternative to glass shot as its breakdown resistance is superior to glass shot for similar sizes and intensities. It has a higher cost than glass shot.

8.5 Intensity Comparisons:

For comparisons of the nominal intensity designations, Type C Almen test specimen deflection may be multiplied by 3.5 to obtain the approximate deflection of a Type A Almen test specimen when shot peened with the same intensity. Almen test strip "A" is ordinarily used for arc heights up to 0.024 inch (0.61 mm); for greater degrees of peening, Almen test strip C is used. For intensities below 0.004A, the Almen test strip Type "N" should be used. For comparison of the nominal intensity designations, Almen test strip Type "A" test specimen deflection may be multiplied by three to obtain the approximate deflection of any Almen test strip Type "N" specimen when shot peened at the same intensity.

8.6 Dimensions and properties in inch/pound units and the Fahrenheit temperatures are primary; dimensions and properties in SI units and the Celsius temperatures are shown as the approximate equivalents of the primary units and are presented only for information.

8.7 For direct U.S. Military procurement, purchase documents should specify not less than the following:

Title, number, and date of this specification
Part number of parts to be peened
Quantity of parts to be peened
Level A packaging, if required (See 5.2).

8.8 Similar Specifications:

MIL-S-13165 is listed for information only and shall not be construed as an acceptable alternate unless all requirements of this AMS are met.

8.9 Processes meeting the requirements of this specification have been classified under Federal Standardization Area Symbol "MFFP."

8.10 Key Words:

Shot peening, computer monitored

PREPARED UNDER THE JURISDICTION OF AMS COMMITTEE "B".