Miscellaneous Specifications

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NUMBER:	TITLE:	SCOPE:
AMS 2430	Shot Peening	Form: This specification covers the engineering requirements for peening surfaces of parts by impingement of metallic shot, glass beads, or ceramic shot. Applications: To induce residual compressive stress into surface layers of parts, thereby increasing fatigue strength and resistance to stress-corrosion cracking.
AMS 2431	Peening Media Gen. Requirements	This specification establishes general requirements for the media to be used in controlled shot peening of metal parts.
AMS 2431/1	Peening Media Cast steel shot (45-52 HRC)	This specification, in conjunction with the general requirements covered in AM 2431, establishes the requirements for *regular cast steel shot* to be used for peening of metal parts.
AMS 2431/2	Peening Media Cast steel shot (55-62 HRC)	This specification, in conjunction with the general requirements covered in AMS 2431, established the requirements for *hard cast steel shot* to be used for peening of metal parts.
AMS 2431/3	Peening Media Conditioned Carbon Steel cut wire shot	The specification, in conjunction with the general requirements covered in AMS 2431, established the requirements for *conditioned carbon steel cut wire shot* to be used for peening of metal parts.
AMS 2431/4	Peening Media Cond. Stainless Steel cut wire shot 18.5 Cr – 10 Ni	This specification, in conjunction with the general requirements covered in AMS 2431, establishes the requirements for *conditioned stainless steel cut wire shot* to be used for peening of metal parts.
AMS 2431/5	Peening Media Case Hardened Steel Balls	This specification, in conjunction with the general requirements covered in AMS 2431, established the requirements for *peening balls* to be used for peening of metal parts.
AMS 2431/6	Peening Media Glass Shot	This specification, in conjunction with the general requirements covered in AMS 2431, established the requirements for *glass shot* to be used for peening of metal parts.
AMS 2431/7	Peening Media Ceramic Shot	This specification, in conjunction with the general requirements covered in AMS 2431, established the requirements for *ceramic shot*, for peening of metal parts.
AMS 2432	Shot Peening, Computer Monitored	Purpose: This specification established the engineering requirements for computer monitored peening of surfaces of parts. Application: This procedure has been used typically to induce, through cold working, a surface layer that is residual stressed in compression thereby enchanting 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. Shot peening in conformance with this specification requires that locations of intensity verification (Almen strip locations) be shown on the drawing. 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.
MIL-G-9954	Glass Beads, for Cleaning – Peening	This specification covers glass beads to be used with pressure/suction type blasting equipment. Classification: Glass beads shall be of tone type and 13 sizes as specified in Table I.
MIL-P-81985	Military Specification Peening of Metals (Naval Air Systems)	This specification covers procedures and requirements for dry peening the surfaces of metals by impingement of metallic shot or glass beads for the purpose of increasing the fatigue strength of and resistance to stress corrosion cracking by inducing residual compressive stresses in specified surfaces.
MIL-R-81841	Rotary Flap Peening of Metal Parts	This specification covers procedures and requirements for peening of metal parts with portable bonded-shot rotary flap wheels.
MIL-S-13165	Military Specification Shot Peening of Metal Parts	This specification covers procedure requirements for shot peening of metal parts, to induce residual compressive stresses in specified surfaces, for the purpose of improving resistance to fatigue, stress corrosion cracking and galling.
MIL-S-366	Sieve, Test	This specification covers woven-wire-cloth sieves, ad round-hole and square-hole, perforated-plate sieves intended for general use in the classification of materials according to size (mechanical analysis, fineness, and particle size determinations.)
MIL-S-851	Steel Grit, Shot and Cut Wire Shot; and Iron Grit and Shot Blast Cleaning and Peening	This specification covers cast iron or hardened cast steel grit and shot for blast cleaning of castings, forgings, ship hulls and decks, or other parts prior to use for the removal of sand, slag, rust, and marine encrustation's; and also cast iron or hardened cast steel shot, or cut steel wire shot for peening the surface of metals. Grit and shot shall be of the following types: Type I – Cast Steel (grit and shot), Type II – Cast Iron (grit and shot), Type III – Steel Cut Wire (shot only).

MIL-Std-852	Glass Bead Peening Procedures	This standard establishes minimum requirements and procedures for glass bead peening of ferrous and non-ferrous parts which are subjected to repeated applications of stress such as the following: axles, landing gear parts, springs, gears, structural extrusions, and wing panels. The purpose of such peening is to relieve stress, increase fatigue life and increase resistance to stress corrosion.
MIL-W-81840	Wheels, Peening, Rotary Flap	This specification covers rotary flap wheels used with portable equipment for peening of metal parts.
SAE HS-84	SAE Manual on Shot Peening 3rd Edition	This manual on shot peening is intended to be a practical aid to engineers, designers, and operators in the shop, and points out some f the possibilities and some of the limitations of the process.
SAE J441	Cut Wire Shot	This SAE *Recommended Practice* is considered to be tentative and is subject to modification to meet new developments or requirements. It is offered as a guide in the selection and use of cut wire shot.
SAE J442	Test Strip, Holder and Gage for Shot Peening	This SAE *Standard* is supplemented by and SAE *Recommended Practice, Procedures for Using Standard Shot Peening Test Strip, SAE J443.*
SAE J443	Procedures for using Standard Shot Peening Test Strips	This SAE *Recommended Practice* provides uniform procedures for using the standard shot peening test strips reported in SAE Standard J442, Test Strip, Holder and Gage for Shot Peening. Standard test strips are used to control repeatability of the shot peening machine operations, and to specify a desired result on a part. It is recommended that the standard test strip A be used for intensities that produce arc heights of 6A to 24A. For intensities below 6A, the standard N strip is recommended. Intensities above 24A, the standard C strip is recommended. Shot peening is intended to induce surface compressive stresses in metal parts for the purpose of improving resistance to fatigue and stress corrosion cracking. Springs, axles and aircraft landing gears are typical examples of such parts. To have the desired effect, shot peening requires that specified intensity and coverage be achieved on critical areas, where the high tension stresses or stress ranges are most likely to cause fatigue or stress corrosion failures in service. Actual experience with service failures or fatigue tests may sometimes be required to discover or confirm the location of areas subject to critical stressing, as a result of service, design and/or manufacturing conditions.
SAE J444	Cast Shot and Grit Size Specifications for Peening and Cleaning	This SAE *Recommended Practice* pertains to blast cleaning and shot peening and provides for standard cast shot and grit size numbers. For shot, this number corresponds with the opening of the nominal test sieve, in ten thousandths of inches[1], preceded by an S. For grit, this number corresponds with the sieve designation of the nominal test sieve with the prefix G added. These sieves are in accordance with ASTM E11.
SAE J445	Metallic Shot / Grit Mechanical Testing	This report is intended to provide users and producers of metallic shot and grit with general information on methods of mechanically testing metal shot in the laboratory.
SAE J827	Cast Steel Shot	This SAE *Recommended Practice* describes chemical analysis, hardness microstructure and physical characteristic requirements for cast steel shot to be used for shot peening or blast cleaning operations.
SAE J1173	Size Classification & Characteristics of Glass Beads for Peening	This specification covers the characteristics of glass beads used for peening, and provides for standard glass bead size numbers.
SAE J1830	Size Classification & Characteristics of Ceramic Shot for Peening	This specification covers characteristics for chemistry, microstructure, density, hardness, size, shape, and appearance of zirconium oxide based ceramic shot, suitable for peening surface parts by impingement.
SAE J2175	Specifications for Low Carbon Cast Steel Shot	This SAE *Recommended Practice* describes chemical analysis, hardness, microstructure, and physical characteristic requirements for low carbon cast steel shot to be used for shot peening or blast cleaning operations.

Example: S-550 indicates a cast steel shot identified by a nominal sieve opening of 0.0555”
Shot and/or grit will hereafter be referred to as shot.