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# AEROSPACE MATERIAL SPECIFICATION

AMS 2431/3

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Submitted for recognition as an American National Standard

## PEENING MEDIA Conditioned Carbon Steel Cut Wire Shot

1. SCOPE: This specification, in conjunction with the general requirements covered in AMS 2431, establishes the requirements for conditioned carbon steel cut wire shot to be used for peening of metal parts.

2. APPLICABLE DOCUMENTS: See AMS 2431.

3. TECHNICAL REQUIREMENTS:

3.1 Conditioned carbon steel cut wire shot shall conform to AMS 2431 and the requirements specified herein.

3.2 Composition: Shall conform to the following percentages by weight:

	min	max
Carbon	0.45	0.75
Manganese	0.60	1.20
Silicon	0.10	0.30
Phosphorus	--	0.045
Sulfur	--	0.050

3.2.1 Hardness: Not less than 95% of the readings, using a microhardness tester, shall be at or above the minimum value for the shot size as specified in Table I. The hardness testing shall be performed after the shot has been conditioned for shape.

3.2.2 Wire Quality: Shot shall be manufactured from wire that is free from shear cracks and laps and shall not contain excessive seams or burrs.

3.2.3 Weight: Fifty pieces shall conform to requirements of Table 1.

3.2.4 Contamination: Shot shall be clean and free of dirt, grit, or grease.

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3.3 Workmanship:

3.3.1 Shape: Shall be predominantly spherical, as a result of conditioning, with no sharp edges allowed.

3.3.2 Conditioning: Shall be accomplished by impacting the cut wire against a hardened steel plate until a predominantly round condition has been accomplished.

3.4 Size: Shall conform to the requirements of Table 1.

3.5 Test Methods and Procedures:

3.5.1 Composition: Shall be determined in accordance with ASTM A751.<sup>3</sup>

3.5.2 Hardness: Shall be determined in accordance with ASTM E384.

3.5.3 Size: The size of shot shall be determined by the use of wire with a mean diameter as specified in Table 1.

4. QUALITY ASSURANCE PROVISIONS: See AMS 2431 and the following:

4.1 Sampling: Two inspection lots of 800 g each shall be selected from separate containers chosen at random. Each sample shall be split to the following test quantities by the use of a sample splitter:

4.1.1 Composition: Not less than two samples from each inspection lot.

4.1.2 Hardness: Twenty microhardness readings shall be made from each sample with no more than 1 impression from any single shot.

4.1.2.1 Samples for microhardness testing shall be prepared by encapsulating a single layer of shot in a plastic mount and polishing down to nominal half spheres.

4.1.3 Structure: The sample population used for hardness testing shall also be used for structure evaluation.

4.1.4 Weight: Two 60 g samples for weight determination.

4.1.5 Shape: A sample shall consist of approximately 100 pieces taken at random from each inspection lot and a visual count, using 20X magnification, shall be taken to determine the percentage of partially conditioned shot.

5. PREPARATION FOR DELIVERY: See AMS 2431 and the following:

5.1 Packaging and Identification: Steel shot shall be packaged in 50 pound (23 kg) units in plastic lined bags or boxes.

6. ACKNOWLEDGMENT: See AMS 2431.

7. REJECTIONS: See AMS 2431.

8. NOTES: See AMS 2431 and the following:

8.1 Intended Use: Conditioned carbon steel cut wire shot conforming to this specification is intended for use in peening metal surfaces to impart compressive stresses to these surfaces thereby increasing resistance to fatigue and stress-corrosion cracking. Generally, conditioned carbon steel cut wire shot is used on metal parts where a media of high uniformity and durability is required.

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