

Peening Media (ASH)
Cast Steel Shot, High Hardness (55 to 62 HRC)

1. SCOPE:

The complete requirements for procuring the product shall consist of this document and the latest issue of the basic specification, AMS 2431.

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 canceled and no superseding document has been specified, the last published issue of that document shall apply.

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001 or www.sae.org.

AMS 2431 Peening Media, General Requirements

2.2 ASTM Publications:

Available from ASTM, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 or www.astm.org.

ASTM E 11 Wire Cloth and Sieves for Testing Purposes

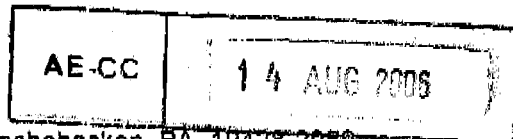
ASTM E 350 Chemical Analysis of Carbon Steel, Low-Alloy Steel, Silicon Electrical Steel, Ingot Iron and Wrought Iron

ASTM E 384 Microindentation Hardness of Materials

3. TECHNICAL REQUIREMENTS:

3.1 Cast steel shot, high hardness, shall conform to AMS 2431 and the requirements specified herein.

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- 3.7.1 **Acceptable Shapes:** Shapes in accordance with Figure 1 are acceptable.
- 3.7.2 **Marginal Shapes:** Shapes conforming to Figure 2 are permissible to the extent specified in Table 3
- 3.7.3 **Unacceptable Shapes:** Shapes conforming to Figure 3 are permissible to the extent specified in Table 3.
- 3.7.4 **Internal Defects:** No more than 15% of the particles, by count, may exhibit cracks, hollows, or shrinkage (See Figure 4).

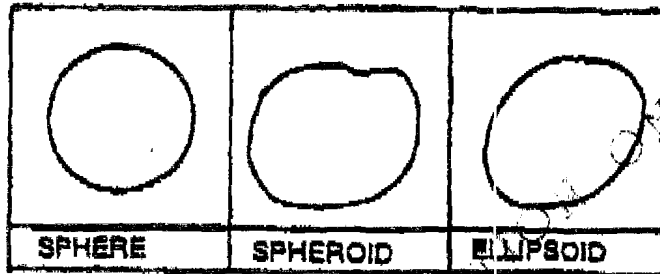


FIGURE 1 - Acceptable Shapes

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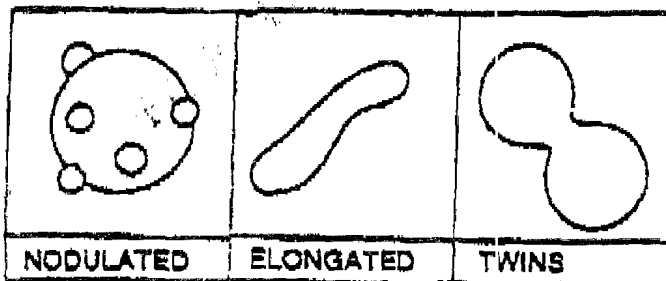


FIGURE 2 - Marginal Shapes

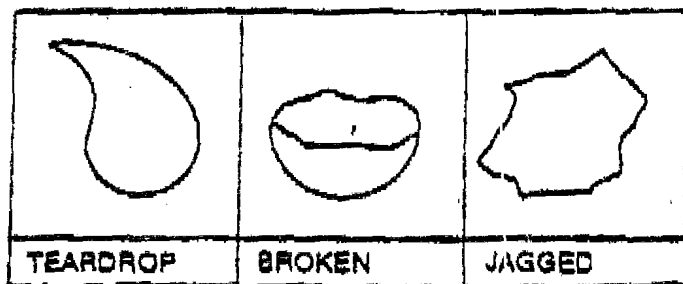


FIGURE 3 - Unacceptable Shapes

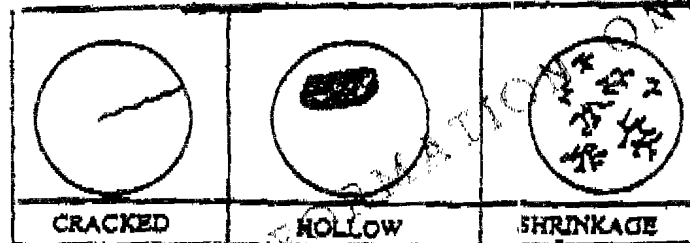


FIGURE 4 - Internal Defects

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- 3.9.2 Density: Sixty grams of shot, previously dried and weighed, shall be placed in a 100 mL graduated cylinder containing 50 mL of ethanol or methanol. The total volume minus 50 mL represents the volume of the shot. The density is determined using Equation 1.

$$\text{Density} = \frac{60 \text{ grams}}{\text{Shot Volume}} \quad (\text{Eq. 1})$$

- 3.9.3 Shape: Visual evaluation, at a magnification of 10 to 30X shall be performed using the areas and number of fields specified in Table 3 for each respective shot size.
- 3.9.4 Microstructure: The sample shall be mounted, polished, and etched with 2% Nital, or other suitable etchant, and examined using a microscope at approximately 500X magnification.

4. QUALITY ASSURANCE PROVISIONS:

See AMS 2431 and the following:

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4.1 Sampling and Testing:

Two samples of 800 grams each shall be selected from separate containers chosen at random from each lot. Each sample shall be split using a sample splitter to test quantities as follows:

- 4.1.1 Composition: Not less than two samples from each lot shall be evaluated.
- 4.1.2 Hardness: A minimum of 20 microhardness readings shall be made from each sample with no more than one impression on any one shot. The hardness test impression shall be located approximately midway between the surface and the center of the 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 Microstructure: The sample used for hardness testing may also be used for microstructure evaluation.
- 4.1.4 Density: Two 60-gram samples shall be evaluated for density determination.
- 4.1.5 Size: Two representative samples of not less than 100 grams each shall be used for size evaluation.
- 4.1.5.1 Alternate methods for size evaluation may be utilized provided that they can be correlated to the sieve analysis method and are acceptable to purchaser.
- 4.1.6 Shape: A representative sample shall consist of an amount of shot, in one layer, which completely fills the areas specified in Table 3. The number of areas, or fields of view, evaluated at 10 to 30X magnification (See 3.9.3) for each shot size shall be as indicated in Table 3.

- 8.2.3 Shrinkage is an internal cavity with an irregular dendritic surface and is greater than 40% of the area of the shot particle area.
- 8.2.4 Definitions of other terms used in AMS are presented in ARP 1917.
- 8.3 Hardness Conversions to Rockwell C values for metals are presented in ASTM E 140.