

AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard



AMS 2635D

Issued AUG 1958
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Cancelled MAY 1999

Superseding AMS 2635C

Radiographic Inspection

CANCELLATION NOTICE

This specification has been declared "CANCELLED" by the Aerospace Materials Division, SAE, as of May 1999, and has been superseded by ASTM E 1742. The requirements of the latest issue of ASTM E 1742 shall be fulfilled whenever reference is made to the cancelled AMS 2635D. By this action, this document will remain listed in the Numerical Section of the Index of Aerospace Material Specifications noting that it is superseded by ASTM E 1742.

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1. SCOPE:**1.1 Purpose:**

This specification covers the procedures for radiographic inspection.

1.2 Application:

Primarily for determining the presence of cracks, porosity, blowholes, inclusions, and other imperfections which may or may not be exposed to the surface and which may be detrimental to usage of the parts.

2. APPLICABLE DOCUMENTS:

The following publications form a part of this specification to the extent specified herein. The latest issue of Aerospace Material Specifications shall apply.

2.1 SAE Publications:

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

2.1.1 Aerospace Material Specifications:

AMS 7295 Radiographic Film and Paper, Industrial

3. TECHNICAL REQUIREMENTS:**3.1 Equipment:**

3.1.1 General: The radiographic equipment and procedures shall have qualification approval, unless otherwise specified.

3.1.2 Film: Shall be high-contrast, fine-grained safety film except when wide subject latitude or excessively long exposures prohibit its use. Film shall conform to AMS 7295 or equivalent.

3.1.2.1 Film Quantity: Only one film need be exposed at each location; however, multiple film techniques are permitted.

- 3.1.2.2 Film Density:** Where the single film technique is used, the density of individual films shall be between 1.5 and 4.0 in the area being examined. Where the multiple film technique is used, the density of the superimposed films shall be between 2.0 and 4.0 in the area being examined. When the thickness of the part varies considerably in the area under examination, two films, either of equal or of different speeds, may be exposed simultaneously in the same film holder and the resultant radiograph submitted for interpretation either as single or superimposed film, whichever is better suited for the interpretation of any small portion of the area covered by the exposure. For the small portion of the area under immediate examination, the density of either the single or the superimposed film shall be in accordance with the above requirements.
- 3.1.3 Penetrameters:** Shall be fabricated of material of the same base metal and of approximately the same radiographic density as the material to be radiographed, except as specified in 3.1.3.1.1. Dimensions of standard penetrameters shall be as shown in Fig. 1.
- 3.1.3.1 Penetrometer thickness shall be not greater than 2% of the thickness of the section to be radiographed, except as specified in 3.1.3.1.1.**
- 3.1.3.1.1** If the section to be radiographed is less than 0.25 in. (6.4 mm) thick, either penetrameters specifically designed for the application or the standard 0.005 in. (0.13 mm) thick penetrometer shall be used unless purchaser waives the use of penetrameters. The material and design of penetrameters prepared for specific applications shall be as agreed upon by purchaser and vendor. The use of specifically designed penetrameters is recommended, particularly in radiographing sections less than 0.125 in. (3.2 mm) thick.
- 3.1.3.2 Standard rectangular penetrameters shall be identified with a number made of lead alloy attached thereto or by punching or machining out the number. This number shall be equal to the thickness, in inches (millimetres), of the metal to which the penetrometer is normally applicable and shall have a value equal to 50 times the thickness of the penetrometer. When standard circular penetrameters are used, the lead alloy numbers shall be placed adjacent to the penetrometer to provide identification of the penetrometer on the film. Nonstandard penetrameters shall be identified as agreed upon by purchaser and vendor.**
- 3.1.3.2.1** If standard 0.005 in. (0.13 mm) thick penetrameters are used in radiographing sections less than 0.25 in. (6.4 mm) thick, a series of such penetrameters may be prepared which shall be identical in all respects to the standard 0.005 in. (0.13 mm) penetrometer except that each shall be marked as in 3.1.3.2 with the thickness to which it is normally applicable and the resulting sensitivity.
- 3.1.3.2.2** Penetrameters shall have suitable, permanent, identification markings so as to be distinguishable with respect to material.
- 3.1.4 Screens and filters may be used to give better definition and sensitivity.**