

AEROSPACE MATERIAL SPECIFICATION

Submitted for recognition as an American National Standard



AMS 2646D

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Superseded by ASTM E 1220

Contrast Dye Penetrant Inspection

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This specification has been declared "CANCELLED" by the Aerospace Materials Division, SAE, as of April 1999, and has been superseded by ASTM E 1220. The requirements of the latest issue of ASTM E 1220 shall be fulfilled whenever reference is made to the cancelled AMS 2646D. 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will remain listed in the Numerical Section of the Index of Aerospace Material Specifications noting that it is superseded by ASTM E 1220.

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1. SCOPE:

1.1 Purpose:

This specification establishes a procedure for detection of discontinuities open to the surface of parts by the use of a penetrating dye.

1.2 Application:

Detection of discontinuities such as cracks, laps, porosity, cold shuts, lack of bond, and similar defects. Because inspection can be performed in normal light, this method can be used under conditions where use of fluorescent penetrant inspection is impracticable.

2. APPLICABLE DOCUMENTS:

None.

3. TECHNICAL REQUIREMENTS:

3.1 Materials:

- 3.1.1 Penetrant: Shall be a strongly-colored liquid capable of penetrating fine discontinuities. The penetrant shall be removable by washing with water or with other common solvents, or by vapor degreasing; penetrant shall be noncorrosive.
- 3.1.2 Developer: The developer shall be of the type recommended by the manufacturer of the penetrant used.
- 3.1.3 Liquid vehicles of the penetrant and developer shall be noninjurious to the parts to be tested.
- 3.1.4 Check of Penetrant: The dye penetrant materials shall be checked for effectiveness as often as necessary to maintain proper control.

3.2 Equipment:

For permanent installations where materials are applied by immersion of parts, equipment shall be so constructed and arranged as to permit uniform, controlled operation.

3.3 Preparation of Parts:

- 3.3.1 Parts shall normally be contrast dye penetrant inspected prior to all surface treatments such as plating, anodizing, dichromating, peening, or similar treatments which would tend to close or mask surface discontinuities. Contrast dye penetrant inspection may be performed after surface treatments provided it is demonstrated that the treatment is of such a nature that discontinuities are not obscured. This section shall not be interpreted as prohibiting additional dye penetrant inspection after processing or after use of parts.