

Magnetic Particles, Fluorescent
Wet Method, Dry Powder

RATIONALE

AMS3044F revises 3.2.2 for ultraviolet light, 4.3.3 to specify water conditioning agents in accordance with AS4792 and is a Five Year Review and update of this specification.

1. SCOPE

1.1 Form

This specification covers fluorescent magnetic particles in the form of a dry powder.

1.2 Application

These particles have been used typically as the inspection medium in wet, fluorescent magnetic particle inspection system as defined in ASTM E 1444 using either an oil or conditioned-water vehicle, but usage is not limited to such application.

1.3 Safety - Hazardous Materials

While the materials, methods, applications, and processes described or referenced in this specification may involve the use of hazardous materials, this specification does not address the hazards which may be involved in such use. It is the sole responsibility of the user to ensure familiarity with the safe and proper use of any hazardous materials and to take necessary precautionary measures to ensure the health and safety of all personnel involved.

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

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2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or 724-776-4970 (outside USA), www.sae.org.

AMS2641	Vehicle, Magnetic Particle Inspection, Petroleum Base
AS4792	Water Conditioning Agents for Aqueous Magnetic Particle Inspection
AS5282	Tool Steel Ring for Magnetic Particle Inspection

2.2 ASTM Publications

Available from ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959, Tel: 610-832-9585, www.astm.org.

ASTM D 1966	Test Method for Foots in Raw Linseed Oil
ASTM E 11	Wire-Cloth Sieves for Testing Purposes
ASTM E 1444	Magnetic Particle Examination

3. TECHNICAL REQUIREMENTS

3.1 Material

The product shall be composed of durable fluorescent magnetic particles, suitable for long time use, which have been treated to obtain the fluorescent color specified. This dry powder shall be formulated for use with an aqueous vehicle containing appropriate conditioning agents, a magnetic particle vehicle conforming to AMS2641, or equivalent odorless oil, and shall disperse evenly and thoroughly in the recommended vehicle.

3.2 Properties

The product shall conform to the following requirements; tests shall be performed, on the product supplied, in accordance with specified test methods using a test suspension prepared as in 4.3.3.

3.2.1 Contamination

The product shall show no evidence of foreign material, agglomeration, or scum, determined by visual examination of the test suspension at the following times:

3.2.1.1 During preparation of the test suspension as in 4.3.3.

3.2.1.2 After mixing the test suspension, allowing it to stand for not less than 30 minutes, and agitating it slightly.

3.2.1.3 During tests to determine conformance with other characteristics of the product.

3.2.2 Color

The color of the magnetic particles shall be fluorescent in the yellow-green range, unless another color is specified by purchaser. The color shall be determined by observing the indications formed, during the sensitivity test of 3.2.5, in a darkened area under ultraviolet light with a minimum UV-A intensity of $1000 \mu\text{W}/\text{cm}^2$ at the inspection surface. Visible light shall not exceed 2 foot-candles (20 lx) at the inspection surface.