



AEROSPACE MATERIAL SPECIFICATION

AMS3040™

REV. E

Issued 1974-03
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Revised 2023-05

Superseding AMS3040D

Magnetic Particles, Nonfluorescent
Dry Method

RATIONALE

AMS3040E is the result of a Five-Year Review and update of the specification. The revision updates use of the product in line with general industry practice (3.1), eliminates preproduction testing (4.2), permits statistical sampling (4.2.1.2), and allows the use of powder which was produced to the prior revision (8.3).

1. SCOPE

1.1 Form

This specification covers nonfluorescent, magnetic particles having black, red, gray, or other color, as specified, supplied in the form of dry powders.

1.2 Application

This product is used typically as an inspection medium in a dry magnetic particle inspection process in accordance with ASTM E3024/E3024M, 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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<https://www.sae.org/standards/content/AMS3040E/>

2.1 SAE Publications

Available from SAE International, 400 Commonwealth Drive, Warrendale, PA 15096-0001, Tel: 877-606-7323 (inside USA and Canada) or +1 724-776-4970 (outside USA), www.sae.org.

AS5282 Tool Steel Ring for Magnetic Particle Inspection

AS7766 Terms Used in Aerospace Metals Specifications

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 B214 Standard Test Method for Sieve Analysis of Granular Metal Powders

ASTM E3024/E3024M Standard Practice for Magnetic Particle Testing for General Industry

2.3 Definitions

Terms used in AMS are defined in AS7766.

3. TECHNICAL REQUIREMENTS

3.1 Material

The product shall be composed of durable nonfluorescent magnetic particles suitable for use in the dry magnetic particle inspection process in accordance with ASTM E3024/E3024M and which may have been treated to attain the color specified.

3.2 Properties

The product shall conform to the following requirements; tests shall be performed on the product supplied and in accordance with specified test procedures:

3.2.1 Contamination

The dry powder shall show no evidence of foreign material or agglomeration, determined by visual examination during the tests to determine other characteristics of the product.

3.2.2 Color

The product shall be black, red, gray, or other color, as specified, determined by applying the dry powder onto white paper at least 8-1/2 x 11 inches (216 x 279 mm), completely covering an area not less than 4 inches (102 mm) in diameter. The color shall be observed under a white light of not less than 100 foot-candles (1076 lx) at the examining surface.

3.2.3 Particle Size

The magnetic particles shall be of such size that not less than 98% by weight shall pass through a U.S. Standard No. 80 screen/sieve, determined in accordance with ASTM B214. Determine the dry weight of the residual particulate material not passing through the screen/sieve as related to the original weight of the sample, expressed in percent.