



Overview of Liquid Penetrant and Magnetic Particle Inspection Specifications

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ASTM E1417 “Standard Practice for Liquid Penetrant Examination” governs the liquid penetrant inspection process used in manufacturing and maintenance operations. ASTM E1417 addresses personnel requirements, equipment requirements, penetrant application, and penetrant removal methods. ASTM E1417 also establishes the required tests and testing frequency for in-use penetrant materials.

SAE AMS 2644 “Inspection Material, Penetrant” covers the qualification, classification, and test procedures for all liquid penetrant test materials. QPL-SAE-AMS-2644 is the Qualified Products List of all the penetrants, emulsifiers, cleaners, and developers that have been qualified under SAE AMS 2644.

ASTM E3024 “Standard Practice for Magnetic Particle Examination” is the guiding document for magnetic particle inspection. ASTM E1444 establishes the general practice and quality control requirements.

ASTM E709 is a supporting document that may be used with ASTM E3024. ASTM E709 is used as a reference guide for preparing inspection procedures. ASTM E709 describes magnetic particle inspection techniques that are recommended for various sizes and shapes of ferrous parts. **There is no qualified products list for magnetic particle materials.**

However, several AMS specifications provide the guidelines for magnetic particle materials. These AMS specifications cover the technical requirements and quality assurance provisions of various forms and methods of magnetic particle materials (dry method, wet method, fluorescent, non-fluorescent, oil vehicle). These AMS documents are used together with ASTM E3024. The following chart lists the specification, description and the corresponding Magnaflux product.

SPECIFICATION	DESCRIPTION	MAGNAFLUX PRODUCT
AMS 2641	Oil Vehicle	Carrier II
AMS 3040	Dry method non-fluorescent	#1 Gray, #2 Yellow, #3A Black, #8A Red
AMS 3041	Wet method non-fluorescent, ready- to-use, oil based	7HF, 9CM
AMS 3042	Wet method non-fluorescent	7C, 9C
AMS 3043	Wet method non-fluorescent aerosol, oil based	7HF, 9CM
AMS 3044	Wet method fluorescent	14A
AMS 3045	Wet method fluorescent ready-to-use, oil based	14AM
AMS 3046	Wet method fluorescent aerosol, oil based	14AM



Copies of ASTM specifications may be ordered from ASTM, 100 Barr Harbor Drive
West Conshohocken, PA 19428-2959 Phone: (610) 832-9585
Website: www.astm.org

Copies of AMS/SAE specifications may be ordered from SAE World Headquarters, 400 Commonwealth Drive
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