



Standard Practice for Fluorescent Liquid Penetrant Testing Using the Water- Washable Process¹

This standard is issued under the fixed designation E1209; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This practice² covers procedures for water-washable fluorescent penetrant examination of materials. It is a nondestructive testing method for detecting discontinuities that are open to the surface such as cracks, seams, laps, cold shuts, laminations, isolated porosity, through leaks, or lack of porosity and is applicable to in-process, final, and maintenance examination. It can be effectively used in the examination of nonporous, metallic materials, both ferrous and nonferrous, and of nonmetallic materials such as glazed or fully densified ceramics and certain nonporous plastics and glass.

1.2 This practice also provides a reference:

1.2.1 By which a fluorescent penetrant examination method using the water-washable process recommended or required by individual organizations can be reviewed to ascertain its applicability and completeness.

1.2.2 For use in the preparation of process specifications dealing with the water-washable fluorescent penetrant examination of materials and parts. Agreement by the purchaser and the manufacturer regarding specific techniques is strongly recommended.

1.2.3 For use in the organization of the facilities and personnel concerned with the liquid penetrant examination.

1.3 This practice does not indicate or suggest standards for evaluation of the indications obtained. It should be pointed out, however, that indications must be interpreted or classified and then evaluated. For this purpose there must be a separate code or specification or a specific agreement to define the type, size, location, and direction of indications considered acceptable, and those considered unacceptable.

1.4 The values stated in inch-pound units are regarded as standard. SI units given in parentheses are for information only.

1.5 All areas of this document may be open to agreement between the cognizant engineering organization and the supplier, or specific direction from the cognizant engineering organization.

1.6 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:³

D129 Test Method for Sulfur in Petroleum Products (General High Pressure Decomposition Device Method)

D516 Test Method for Sulfate Ion in Water

D808 Test Method for Chlorine in New and Used Petroleum Products (High Pressure Decomposition Device Method)

D1552 Test Method for Sulfur in Petroleum Products (High-Temperature Method)

E165 Practice for Liquid Penetrant Examination for General Industry

E433 Reference Photographs for Liquid Penetrant Inspection

E543 Specification for Agencies Performing Nondestructive Testing

E1316 Terminology for Nondestructive Examinations

2.2 ASNT Documents:

Recommended Practice SNT-TC-1A Personnel Qualification and Certification in Nondestructive Testing⁴

ANSI/ASNT-CP-189 Qualification and Certification of NDT Personnel⁴

2.3 Military Standard:⁵

MIL-STD-410 Nondestructive Testing Personnel Qualification and Certification

¹ This practice is under the jurisdiction of ASTM Committee E07 on Nondestructive Testing and is the direct responsibility of Subcommittee E07.03 on Liquid Penetrant and Magnetic Particle Methods.

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² For ASME Boiler and Pressure Vessel Code applications see related Test Method SE-1209 in Section II of that Code.

³ For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

⁴ Available from The American Society for Nondestructive Testing (ASNT), P.O. Box 28518, 1711 Arlington Lane, Columbus, OH 43228-0518.

⁵ Available from Standardization Documents Order Desk, Bldg. 4 Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, Attn: NPODS.