



Standard Guide to Test Methods and Standards for Nondestructive Testing of Advanced Ceramics¹

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1. Scope

1.1 This guide identifies and describes standard procedures and methods for nondestructive testing of advanced ceramics using radiology, ultrasonics, liquid penetrants, and acoustic emission.

1.2 This guide is to identify existing standards for nondestructive testing that have been determined to be (or have been modified to be) applicable to the examination of advanced ceramics. These standards have been generated by, and are under the jurisdiction of, ASTM Committee E-7 on Nondestructive Testing. Selection and application of these standards to be followed must be governed by experience and the specific requirements in each individual case, together with agreement between producer and user.

1.3 The values stated in SI units are to be regarded as the standard. The inch-pound units given in parentheses are for information only.

1.4 *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:

- E 94 Guide for Radiographic Testing²
- E 114 Practice for Ultrasonic Pulse-Echo Straight-Beam Examination by the Contact Method²
- E 165 Test Method for Liquid Penetrant Examination²
- E 317 Practice for Evaluating Performance Characteristics of Ultrasonic Pulse-Echo Testing Systems Without the Use of Electronic Measurement Instruments²
- E 494 Practice for Measuring Ultrasonic Velocity in Materials²
- E 569 Practice for Acoustic Emission Monitoring of Structures During Controlled Stimulation²
- E 587 Practice for Ultrasonic Angle-Beam Examination by the Contact Method²

- E 650 Guide for Mounting Piezoelectric Acoustic Emission Sensors²
- E 664 Practice for Measurement of the Apparent Attenuation of Longitudinal Ultrasonic Waves by Immersion Method²
- E 750 Practice for Characterizing Acoustic Emission Instrumentation²
- E 797 Practice for Measuring Thickness by Manual Ultrasonic Pulse-Echo Contact Method²
- E 976 Guide for Determining the Reproducibility of Acoustic Emission Sensor Response²
- E 999 Guide for Controlling the Quality of Industrial Radiographic Film Processing²
- E 1000 Guide for Radioscopy²
- E 1065 Guide for Evaluating Characteristics of Ultrasonic Search Units²
- E 1079 Practice for Calibration of Transmission Densitometers²
- E 1106 Method for Primary Calibration of Acoustic Emission Sensors²
- E 1165 Test Method for Measurement of Focal Spots of Industrial X-Ray Tubes by Pinhole Imaging²
- E 1208 Test Method for Fluorescent Liquid Penetrant Examination Using the Lipophilic Post-Emulsification Process²
- E 1209 Test Method for Fluorescent Liquid Penetrant Examination Using the Water-Washable Process²
- E 1210 Test Method for Fluorescent Liquid Penetrant Examination Using the Hydrophilic Post-Emulsification Process²
- E 1219 Test Method for Fluorescent Liquid Penetrant Examination Using the Solvent-Removable Process²
- E 1220 Test Method for Visible Penetrant Examination Using the Solvent-Removable Process²
- E 1254 Guide for Storage of Radiographs and Unexposed Industrial Radiographic Films²
- E 1255 Practice for Radioscopy²
- E 1316 Terminology for Nondestructive Examinations²
- E 1324 Guide for Measuring Some Electronic Characteristics of Ultrasonic Examination Instruments²
- E 1390 Guide for Illuminators Used for Viewing Industrial Radiographs²
- E 1411 Practice for Qualification of Radioscopic Systems²
- E 1441 Guide for Computed Tomography (CT) Imaging²

¹ This guide is under the jurisdiction of ASTM Committee C-28 on Advanced Ceramics and is the direct responsibility of Subcommittee C28.02 on Design and Evaluation.

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² Annual Book of ASTM Standards, Vol 03.03.

