



Standard Practice for Acoustic Emission Examination of Reinforced Thermosetting Resin Pipe (RTRP)¹

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1. Scope*

1.1 This practice covers acoustic emission (AE) examination or monitoring of reinforced thermosetting resin pipe (RTRP) to determine structural integrity. It is applicable to lined or unlined pipe, fittings, joints, and piping systems.

1.2 This practice is applicable to pipe that is fabricated with fiberglass and carbon fiber reinforcements with reinforcing contents greater than 15 % by weight. The suitability of these procedures must be demonstrated before they are used for piping that is constructed with other reinforcing materials.

1.3 This practice is applicable to tests below pressures of 35 MPa absolute [5000 psia].

1.4 This practice is limited to pipe up to and including 0.6 m [24 in.] in diameter. Larger diameter pipe can be examined with AE, however, the procedure is outside the scope of this practice.

1.5 This practice applies to examinations of new or in-service RTRP.

1.6 The values stated in either SI units or inch-pound units are to be regarded separately as standard. The values stated in each system may not be exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in non-conformance with the standard.

1.7 *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 to determine the*

applicability of regulatory limitations prior to use. For more specific safety precautionary information see 8.1.

2. Referenced Documents

2.1 ASTM Standards:²

D883 Terminology Relating to Plastics

E543 Specification for Agencies Performing Nondestructive Testing

E650 Guide for Mounting Piezoelectric Acoustic Emission Sensors

E750 Practice for Characterizing Acoustic Emission Instrumentation

E976 Guide for Determining the Reproducibility of Acoustic Emission Sensor Response

E1106 Test Method for Primary Calibration of Acoustic Emission Sensors

E1316 Terminology for Nondestructive Examinations

E1781 Practice for Secondary Calibration of Acoustic Emission Sensors

E2075 Practice for Verifying the Consistency of AE-Sensor Response Using an Acrylic Rod

2.2 ASNT Standards:³

ANSI/ASNT CP-189 Personnel Qualification and Certification in Nondestructive Testing

ASNT SNT-TC-1A Personnel Qualification and Certification in Nondestructive Testing

2.3 AIA Standard:⁴

NAS-410 Certification and Qualification of Nondestructive Test Personnel

¹ This practice is under the jurisdiction of ASTM Committee E07 on Nondestructive Testing and is the direct responsibility of Subcommittee E07.04 on Acoustic Emission Method.

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² 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.

³ Available from The American Society for Nondestructive Testing (ASNT), P.O. Box 28518, 1711 Arlingate Ln., Columbus, OH 43228-0518.

⁴ Available from Aerospace Industries Association of America, Inc. (AIA), 1250 Eye St., NW, Washington, DC 20005.