



Standard Practice for Acoustic Emission Examination of Pressurized Containers Made of Fiberglass Reinforced Plastic with Balsa Wood Cores¹

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1. Scope*

1.1 This practice covers guidelines for acoustic emission (AE) examinations of pressurized containers made of fiberglass reinforced plastic (FRP) with balsa cores. Containers of this type are commonly used on tank trailers for the transport of hazardous chemicals.

1.2 This practice is limited to cylindrical shape containers, 0.5 m [20 in.] to 3 m [120 in.] in diameter, of sandwich construction with balsa wood core and over 30 % glass (by weight) FRP skins. Reinforcing material may be mat, roving, cloth, unidirectional layers, or a combination thereof. There is no restriction with regard to fabrication technique or method of design.

1.3 This practice is limited to containers that are designed for less than 0.520 MPa [75.4 psi] (gage) above static pressure head due to contents.

1.4 This practice does not specify a time interval between examinations for re-qualification of a pressure container.

1.5 This practice is used to determine if a container is suitable for service or if follow-up NDT is needed before that determination can be made.

1.6 Containers that operate with a vacuum are not within the scope of this practice.

1.7 Repair procedures are not within the scope of this practice.

1.8 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.

1.9 *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. Specific precautionary statements are given in Section 8.*

2. Referenced Documents

2.1 ASTM Standards:²

E543 Specification for Agencies Performing Nondestructive Testing

E750 Practice for Characterizing Acoustic Emission Instrumentation

E976 Guide for Determining the Reproducibility of Acoustic Emission Sensor Response

E1067 Practice for Acoustic Emission Examination of Fiberglass Reinforced Plastic Resin (FRP) Tanks/Vessels

E1316 Terminology for Nondestructive Examinations

E2374 Guide for Acoustic Emission System Performance Verification

2.2 SPI/CARP Standards:³

Recommended Practice for Acoustic Emission Testing of Fiberglass Reinforced Plastic Resin (FRP) Tanks/Vessels

Recommended Practice for Acoustic Emission Testing of Fiberglass Reinforced Plastic Piping Systems

2.3 ANSI/ASNT Standards:⁴

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

ANSI/ASNT CP-189 Standard for Qualification and Certification of NDT 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 American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

⁴ Available from American Society for Nondestructive Testing (ASNT), P.O. Box 28518, 1711 Arlingate Ln., Columbus, OH 43228-0518, <http://www.asnt.org>.