



Designation: D7240 – 18

Standard Practice for Electrical Leak Location Using Geomembranes with an Insulating Layer in Intimate Contact with a Conductive Layer via Electrical Capacitance Technique (Conductive- Backed Geomembrane Spark Test)¹

This standard is issued under the fixed designation D7240; 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 practice is a performance-based standard for an electrical method for locating leaks in exposed conductive-backed geomembranes. For clarity, this practice uses the term “leak” to mean holes, punctures, tears, knife cuts, seam defects, cracks, and similar breaches in an installed geomembrane (as defined in 3.2.7).

1.2 This practice can be used for conductive-backed geomembranes installed in basins, ponds, tanks, ore and waste pads, landfill cells, landfill caps, canals, and other containment facilities. It is applicable for conductive-backed geomembranes made of materials such as polyethylene, polypropylene, polyvinyl chloride, chlorosulfonated polyethylene, bituminous geomembrane, and any other electrically insulating materials. This practice is best applicable for locating conductive-backed geomembrane leaks where the proper preparations have been made during the construction of the facility.

1.3 For electrical leak location of conductive-backed geomembranes using methods in lieu of or in addition to the spark testing method, the installation must be electrically isolated (as defined in 3.2.5).

1.4 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.5 The spark test may produce an electrical spark and therefore should only be used where an electrical spark would not create a hazard. *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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 ASTM Standards:²

- D4439 Terminology for Geosynthetics
- D5641/D5641M Practice for Geomembrane Seam Evaluation by Vacuum Chamber
- D5820 Practice for Pressurized Air Channel Evaluation of Dual Seamed Geomembranes
- D6747 Guide for Selection of Techniques for Electrical Leak Location of Leaks in Geomembranes

3. Terminology

3.1 Definitions:

3.1.1 For general definitions used in this practice, refer to Terminology D4439.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *conductive-backed geomembrane, n*—a specialty geomembrane manufactured using coextrusion technology, featuring an insulating layer in intimate contact with a conductive layer.

3.2.2 *coupling pad, n*—an electrically conductive pad placed on top of the geomembrane and connected to the spark testing apparatus used to induce electrical potential across the conductive-backed geomembrane.

3.2.3 *current, n*—the flow of electricity or the flow of electric charge.

3.2.4 *electrical leak location, n*—a method which uses electrical current or electrical potential to locate leaks in a geomembrane.

¹ This practice is under the jurisdiction of ASTM Committee D35 on Geosynthetics and is the direct responsibility of Subcommittee D35.10 on Geomembranes.

Current edition approved Feb. 1, 2018. Published February 2018. Originally published in 2006. Last previous edition approved 2011 as D7240 – 06 (2011). DOI: 10.1520/D7240-18.

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.