



Designation: D5820 – 95 (Reapproved 2023)

Standard Practice for Pressurized Air Channel Evaluation of Dual-Seamed Geomembranes¹

This standard is issued under the fixed designation D5820; 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 covers a nondestructive evaluation of the continuity of parallel geomembrane seams separated by an unwelded air channel. The unwelded air channel between the two distinct seamed regions is sealed and inflated with air to a predetermined pressure. Long lengths of seam can be evaluated by this practice more quickly than by other common nondestructive tests.

1.2 This practice should not be used as a substitute for destructive testing. Used in conjunction with destructive testing, this method can provide additional information regarding the seams undergoing testing.

1.3 This practice supercedes Practice [D4437/D4437M](#) for geomembrane seams that include an air channel. Practice [D4437/D4437M](#) may continue to be used for other types of seams. The user is referred to the referenced standards or to EPA/530/SW-91/051 for additional information regarding geomembrane seaming techniques and construction quality assurance.

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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.5 *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.*

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

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2. Referenced Documents

2.1 *ASTM Standards:*²

[D4437/D4437M Practice for Nondestructive Testing \(NDT\) for Determining the Integrity of Seams Used in Joining Flexible Polymeric Sheet Geomembranes](#)

[D4439 Terminology for Geosynthetics](#)

[D4491/D4491M Test Methods for Water Permeability of Geotextiles by Permittivity](#)

2.2 *EPA Standard:*³

[EPA/530/SW-91/051 Technical Guidance Document: Inspection Techniques for the Fabrication of Geomembrane Field Seams](#)

3. Terminology

3.1 *Definitions:*

3.1.1 *dual seam, n*—a geomembrane seam with two parallel welded zones separated by an unwelded air space.

3.1.1.1 *Discussion*—The dual seam itself can be made by a number of methods, the most common being the hot wedge technique. Other possible methods include hot air and ultrasonic bonding techniques.

3.1.2 *geomembrane, n*—an essentially impermeable geosynthetic composed of one or more synthetic sheets.

3.1.2.1 *Discussion*—In geotechnical engineering, “impermeable” essentially means that no measurable liquid flows through a geosynthetic when tested in accordance with Test Methods [D4491/D4491M](#).

3.1.3 *seam, n*—a permanent joining of two or more materials.

3.2 For definitions of other terms, see Terminology [D4439](#).

4. Summary of Practice

4.1 This practice utilizes a dual seam where an air channel exists between the two welded zones. Both ends of the air channel are sealed and then a pressure gauge is attached to the

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 Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.