



Designation: D8580 – 24

Standard Practice for Wedge Welding of Polymeric Geomembranes¹

This standard is issued under the fixed designation D8580; 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 applicable for the hot wedge welding of geomembrane liners produced from polymer materials in sealing of geotechnical and hydraulic engineering systems.

1.2 Welding devices may include hot wedge or hot air wedge welders.

1.3 In this practice, the aim is to provide information on and give insight into the importance of factors that influence the quality and durability of geomembrane welds. This standard covers all weldable thermoplastic geomembranes, including of reinforced materials.

1.4 Extrusion welding and the welding of bituminous and non-thermoplastic geomembranes are not covered.

1.5 The work should only be carried out by operators with demonstrated competency in the welding of polymeric geomembranes. Only equipment designed for the welding of polymeric geomembranes shall be used. All operators of such equipment shall have training specific to the equipment and geomembranes being used.

1.6 *Units*—The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered 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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.8 *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. Current edition approved July 1, 2024. Published July 2024. DOI: 10.1520/D8580-24.

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

D5820 Practice for Pressurized Air Channel Evaluation of Dual-Seamed Geomembranes

D6392 Test Method for Determining the Integrity of Nonreinforced Geomembrane Seams Produced Using Thermo-Fusion Methods

D7177/D7177M Specification for Air Channel Evaluation of Polyvinyl Chloride (PVC) Dual Track Seamed Geomembranes

D7747/D7747M Test Method for Determining Integrity of Seams Produced Using Thermo-Fusion Methods for Reinforced Geomembranes by the Strip Tensile Method

D8468 Practice for Data Recording Procedure for Welding Devices Used to Produce Thermal Fusion Welds in Geomembrane Systems

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *contour/contact rollers or sometimes referred to as dwell rollers, n*—a reference to the system that guides the geomembrane over the heat source within the welding device in a controlled manner.

3.1.1.1 *Discussion*—This controlled manner is important to ensure consistency in the welding process. For these reasons, the setup of the contour/contact system is critical for the correct setup of the welding device.

3.1.2 *dew point, n*—the temperature at which air becomes saturated with moisture and can't hold any more water vapor. When the air cools down to the dew point, water vapor in the air starts to condense into tiny water droplets.

3.1.2.1 *Discussion*—At this point, the air cannot hold more water in the gas form. The temperature at which this condensation begins to happen is known as the dew point.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at www.astm.org/contact. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.