



Designation: D5874 – 24

Standard Test Methods for Determination of the Impact Value (IV) of a Soil¹

This standard is issued under the fixed designation D5874; 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 These test methods cover the determination of the Impact Value (IV) of a soil either in the field or a test mold, as follows:

1.1.1 *Field Procedure A*—Determination of IV alone, in the field.

1.1.2 *Field Procedure B*—Determination of IV and water content, in the field.

1.1.3 *Field Procedure C*—Determination of IV, water content and dry density, in the field.

1.1.4 *Mold Procedure*—Determination of IV of soil compacted in a mold, in the lab.

1.2 *Units*—The values stated in SI units are to be regarded as the standard. The values given in parentheses are provided for information only and are not considered standard. Reporting of test results in units other than SI shall not be regarded as nonconformance with this standard.

1.3 The standard test method, using a 4.5 kg (10 lbm) hammer, is suitable for, but not limited to, evaluating the strength of an unsaturated compacted fill, in particular pavement materials, soils, and soil-aggregates having maximum particle sizes less than 37.5 mm (1.5 in.).

1.4 By using a lighter 0.5 kg (1.1 lbm) or 2.25 kg (5 lbm) hammer, this test method is applicable for evaluating lower strength soils such as fine grained cohesionless, highly organic, saturated, or highly plastic soils having a maximum particle size less than 9.5 mm (0.375 in.), or natural turfgrass.

1.5 By using a heavier 10 kg (22 lbm) or 20 kg (44 lbm) hammer, this test method is applicable for evaluating harder materials at the top end the scales or beyond the ranges of the standard and lighter impact soil testers.

1.6 By performing laboratory test correlations for a particular soil using the 4.5 kg (10 lbm) hammer, IV may be correlated with an unsoaked California Bearing Ratio (CBR) or may be used to infer percentage compaction. The IV of the 0.5 kg (1.1

lbm) and 2.25 kg (5 lbm) hammers may be independently correlated to an unsoaked CBR or used to infer the percentage compaction for lower strength soils.

1.7 All observed and calculated values shall conform to the guidelines for significant digits and rounding established in Practice D6026.

1.8 For purposes of comparing a measured or calculated value(s) with specified limits, the measured or calculated value(s) shall be rounded to the nearest decimal or significant digits in the specified limits.

1.8.1 The procedures used to specify how data are collected/recorded or calculated in this standard are regarded as the industry standard. In addition, they are representative of the significant digits that generally should be retained. The procedures used do not consider material variation, purpose for obtaining the data, special purpose studies, or any considerations for the user's objectives; it is common practice to increase or reduce significant digits of reported data to be commensurate with these considerations. It is beyond the scope of this standard to consider significant digits used in analysis methods for design.

NOTE 1—The equipment and procedures contained in this test method are similar to those developed by B. Clegg in the 1970s at the University of Western Australia, Perth, Western Australia, Australia. Impact Value is also commonly known as Clegg Impact Value (CIV).

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

1.10 *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

¹ This test method is under the jurisdiction of ASTM Committee D18 on Soil and Rock and is the direct responsibility of Subcommittee D18.08 on Special and Construction Control Tests.

Current edition approved Feb. 1, 2024. Published March 2024. Originally approved in 1995. Last previous edition approved in 2016 as D5874 – 16. DOI: 10.1520/D5874-24.

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.

*A Summary of Changes section appears at the end of this standard