DRAFT TANZANIA STANDARD

Geotechnical investigation and testing - Laboratory testing of soil - Part 12: Determination of liquid and plastic limits

TANZANIA BUREAU OF STANDARDS

First Edition 2023

This Tanzania Standard was published under the authority of the Board of Directors of Tanzania Bureau of Standards on yyy-mm-dd.

Tanzania Bureau of Standards (TBS) is the statutory national standards body for Tanzania established under the Standards Act No. 3 of 1975, repealed and replaced by the Standards Act No. 2 of 2009.

The Building and Construction Divisional Standards Committee (BCDC), under whose supervision this Tanzania Standard was prepared, consists of representatives from the following organizations:

*College of Engineering and Technology, University of Dar er Salaam
Tanzania Commission for Science and Technology (COSTECH)
Ministry of Works and Transport (MoWT)
National Housing Corporation (NHC)
Contractors Registration Board (CRB)
Ardhi University (ARU)
Jeshi la Kujenga Taifa (JKT)
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Institution of Engineers Tanzania (IET)
*National Construction Council (NCC)
Engineers Registration Board (ERB)

The organizations marked with an asterisk (*) in the above list, together with the following were directly represented on the Technical Committee entrusted with the preparation of this Tanzania Standard:

Dar es salaam Institute of Technology (DIT)
TANROADS-Central Materials Laboratory (CML)
ENGG CONSULT Consulting Engineers
Zanzibar Bureau of Standards (ZBS)

Tanzania Bureau of Standards
P O Box 9524
Dar es Salaam
Tel: +255 (22) 2450206/2450949/2450298
Fax: +255 22 2450298
E-mail: info@tbs.go.tz
Website: www.tbs.go.tz

0 National Foreword

The Tanzania Bureau of Standards is the statutory national standards body for Tanzania, established under standards Act No. 3 of 1975, amended by Act No. 2 of 2009.

This draft Tanzania Standard was prepared by BCDC 13 Foundation and Soils for civil engineering purposes technical committee under the supervision of the Building and Construction Divisional Committee (BCDC).

This draft Tanzania Standard is an identical adoption of the 1st Edition of International Standard ISO 17892-12:2018 *Geotechnical investigation and testing - Laboratory testing of soil - Part 12: Determination of liquid and plastic limits* and ISO 17892-12:2018/Amd.2:2022 *Geotechnical investigation and testing - Laboratory testing of soil - Part 12: Determination of liquid and plastic limits AMENDMENT 2.*

This standard replaces TZS 654 (Part 2): 2004 *Soil test methods – Classification – (Part 2): Determination of Atterberg Limits.*

Terminologies and conventions

The text of the International Standard is hereby recommended for approval without deviation for publication as Tanzania standard. A list of Tanzania Standard(s) equivalent to the ISO standard(s) provided as normative references is given in Annex C.

Some terminologies and certain conventions are not identical with those used as Tanzania Standard; attention is drawn to the following:

The comma (,) has been used as decimal marker (.) for metric dimensions. In Tanzania Standards, its current practice to use a full point on the baseline as decimal marker.

Whenever the words “International Standard” appear, referring to this standard, they should be interpreted as “Tanzania Standard”.

INTERNATIONAL STANDARD

ISO 17892-12

First edition
2018-06

Geotechnical investigation and testing — Laboratory testing of soil —

Part 12: Determination of liquid and plastic limits

Reconnaissance et essais géotechniques — Essais de laboratoire sur les sols —

Partie 12: Détermination des limites de liquidité et de plasticité

Reference number
ISO 17892-12:2018(E)

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 341 *Geotechnical investigation and testing*, in collaboration with ISO Technical Committee TC 182, *Geotechnics*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This first edition of ISO 17892-12 cancels and replaces ISO/TS 17892-12:2004, which has been technically revised. It also incorporates ISO/TS 17892-12:2004/Cor.1:2006.

A list of all the parts in the ISO 17892 series can be found on the ISO website.

Introduction

This document covers areas in the international field of geotechnical engineering never previously standardised internationally. It is intended that this document presents broad good practice and significant differences with national documents is not anticipated. It is based on international practice (see Reference [1]).

Geotechnical investigation and testing — Laboratory testing of soil —

Part 12: Determination of liquid and plastic limits

1 Scope

This document specifies methods for the determination of the liquid and plastic limits of a soil. These comprise two of the Atterberg limits for soils.

The liquid limit is the water content at which a soil changes from the liquid to the plastic state.

This document describes the determination of the liquid limit of a specimen of natural soil, or of a specimen of soil from which material larger than about 0,4 mm has been removed. This document describes two methods: the fall cone method and the Casagrande method.

NOTE The fall cone method in this document should not be confused with that of ISO 17892-6.

The plastic limit of a soil is the water content at which a soil ceases to be plastic when dried further.

The determination of the plastic limit is normally made in conjunction with the determination of the liquid limit. It is recognized that the results of the test are subject to the judgement of the operator, and that some variability in results will occur.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3310-1, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth*

ISO 14688-1, *Geotechnical investigation and testing — Identification and classification of soil — Part 1: Identification and description*

ISO 17892-1, *Geotechnical investigation and testing — Laboratory testing of soil — Part 1: Determination of water content*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply. ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at https://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1
liquid limit
w_L
water content at which a soil passes from the liquid to the plastic state, as determined by the liquid limit test

Annex C
(normative)

In the use of this standard, the ISO standard in the table is replaced with the equivalent Tanzania standard given in Table C.1.

TABLE C.1 — **Tanzania Standard with the equivalent ISO standards**

SN	ISO Standard	Tanzania Standard
1	ISO 14688-1	TZS 2500-1