

ICS 13.080.99; 93.020

English Version

**Earthworks - Soil treatment tests - Part 1: pH-test for
determination of the lime requirement of soils for
stabilization (Lime Fixation Point LFP, Lime Modification
Optimum LMO)**

Terrassements - Essais de traitement de sol - Partie 1 :
Essai pH pour la détermination du besoin en chaux
pour la stabilisation des sols (Point de fixation de la
chaux LFP, Optimum de modification de la chaux LMO)

Erdarbeiten - Prüfungen zur Bodenbehandlung - Teil 1:
pH Test zur Bestimmung des Kalkhydratbedarfs von
Böden zur Stabilisierung (Bestimmung des minimalen
Kalkhydratgehalts (LFP) und des optimalen
Kalkhydratgehalts (LMO))

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European foreword

This document (CEN/TS 17693-1:2021) has been prepared by Technical Committee CEN/TC 396 “Earthworks”, the secretariat of which is held by AFNOR.

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Introduction

This document describes the reference method for the determination of the lime fixation point (LFP) of soils, also called lime modification optimum (LMO).

LFP (LMO) is the theoretical lime content from which can occur the setting and hardening of soil-lime mix, resulting from the pozzolanic reactions due to the combination of lime with clay components of the soil.

It can be considered as the optimal lime amount to be added in a soil in order to perform its improvement, and the minimal lime amount from which stabilization can occur (terms “improvement” and “stabilization” as defined in EN 16907-4).

1 Scope

This document describes the reference method for the determination of the lime fixation point (LFP) in soil treatment for earthworks.

The test consists in measuring the lowest quantity of lime to be added in a soil suspension in water that will result in a pH value of the soil-lime mix suspension of 12,4, measured at $25\text{ °C} \pm 1\text{ °C}$.

This test method cannot be used to provide information about soil reactivity with lime, or other performance values (mechanical characteristics of soil-lime mixes) applicable for improvement or stabilization purposes. Those performance tests will be conducted in a laboratory from a specific study, the lime dosage to be applied being indicated from this method.

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.

EN 459-1, *Building lime - Part 1: Definitions, specifications and conformity criteria*

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

ISO 3310-2, *Test sieves - Technical requirements and testing - Part 2: Test sieves of perforated metal plate*

3 Terms, definitions, abbreviations and symbols

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 Terms

3.1.1

subsample

sample obtained by means of a sample reduction procedure

3.1.2

test portion

sample used as a whole in a single test

3.1.3

lime

general term which includes quicklime, hydrated lime, lime slurry (“milk of lime”), defined and specified according to EN 459-1

3.1.4

lime content

amount of added lime in the soil, expressed as the percentage of lime mass to the dry mass of the soil, or expressed as the percentage to the sum of dry mass of the soil and added lime mass