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Fertilizers, liming materials and inhibitors - Sampling and sample preparation - Part 2:
General sample preparation provisions

Düngemittel, Kalkdünger und Inhibitoren - Probenahme und Probenvorbereitung - Teil 2:
Allgemeine Festlegungen zur Probenvorbereitung

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Fertilizers

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Fertilizers, liming materials and inhibitors - Sampling and sample preparation - Part 2: General sample preparation provisions

Düngemittel, Kalkdünger und Inhibitoren -
Probenahme und Probenvorbereitung - Teil 2:
Allgemeine Festlegungen zur Probenvorbereitung

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 260.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (prEN 1482-2:2023) has been prepared by Technical Committee CEN/TC 260 “Fertilizers and liming materials”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 1482-2:2007.

In comparison with the previous edition, the following technical modifications have been made:

- Title, Introduction, Scope, Normative References, Terms and definitions have been updated,
- Requirements for storage have been added in 6.1.

EN 1482 “Fertilizers, liming materials and inhibitors — Sampling and sample preparation” consists of four parts:

- Part 1: General sampling provisions;
- Part 2: General sample preparation provisions;
- Part 3: Sampling of static heaps;
- Part 4: Sampling for microbiological presence in fertilizers.

This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association.

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prEN 1482-2:2023 (E)**Introduction**

This document (prEN 1482-2:2023) covers the following aspects of sample preparation, derived from the International Standards and documents indicated but presented in a simplified and condensed form. The titles of the International Standards are given in the Bibliography.

- Reduction and preparation of samples for analysis: ISO 7410, ISO 7742, ISO 8358;
- Sampling reports: ISO 5306.

EN 1482-1 covers the sampling of fertilizers, liming materials and inhibitors.

Figure 1 gives a schematic diagram of the sampling and sample preparation process for solids when testing for chemical and physical properties.

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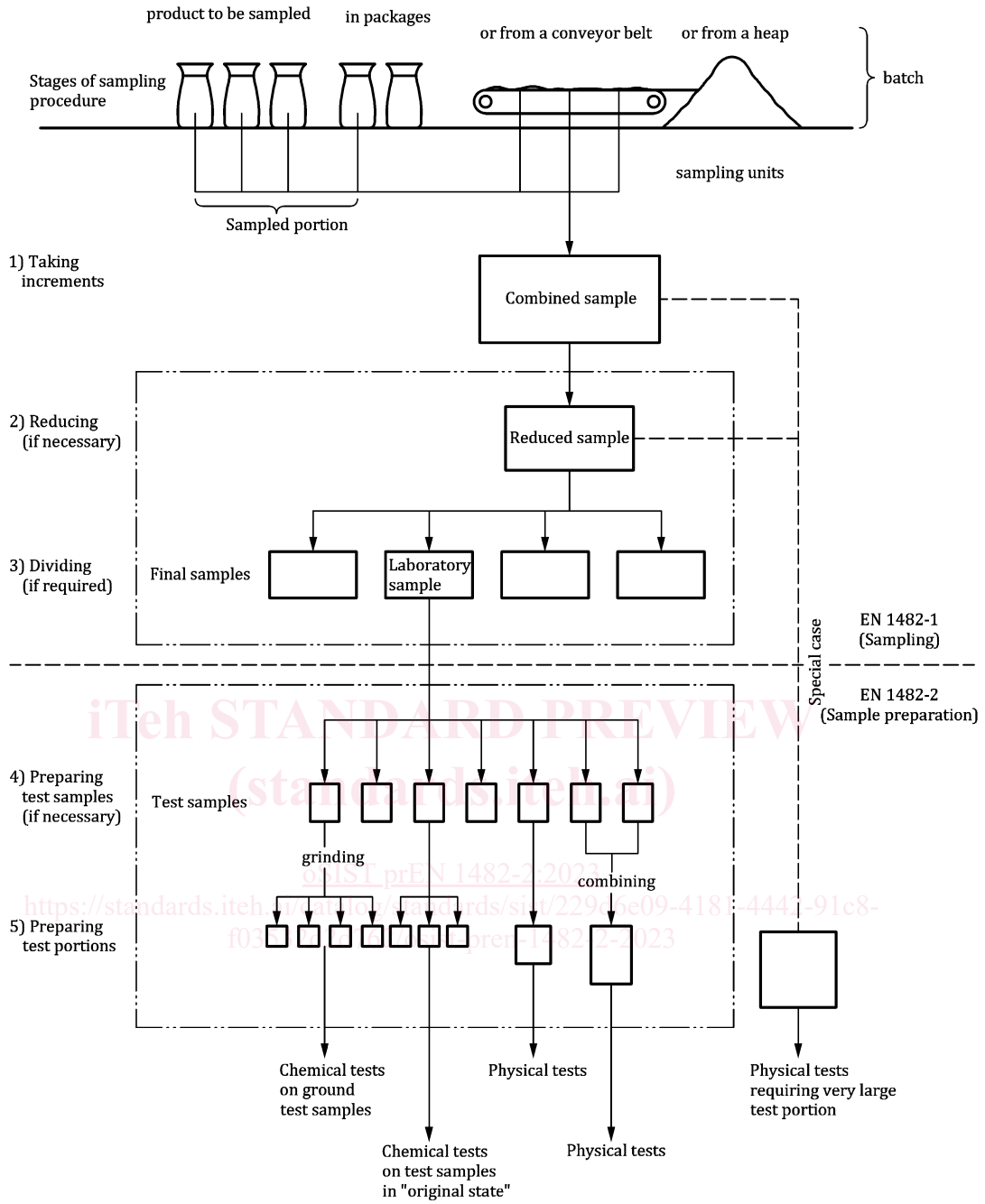


Figure 1 — Schematic diagram of sampling process for solids for chemical and physical testing

prEN 1482-2:2023 (E)**1 Scope**

This document specifies methods for the reduction and preparation of samples of fertilizers, liming materials, inhibitors and blends and sets out the requirements for sample preparation reports. It also specifies methods for the preparation of test samples and test portions from laboratory samples of fertilizer for subsequent chemical or physical analysis. It does not cover the preparation of samples for certain physical tests which require test portions of more than 2 kg.

NOTE 1 The term “fertilizer” is used throughout the body of this document and is understood to include liming materials and inhibitors unless otherwise indicated.

NOTE 2 In relation to the procedures set out in this part of the standard any special procedures specific to a particular test method will be set out in that method standard.

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.

prEN 1482-1:2023, *Fertilizers, liming materials and inhibitors — Sampling and sample preparation — Part 1: General sampling provisions*

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

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology 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
division**

process of producing a number of representative smaller portions, approximately equal in mass to each other, from a larger mass

**3.2
final sample**

in relation to chemical and physical testing only, a representative part of the combined sample taken from the sampled portion obtained, where necessary, by a process of reduction

**3.3
laboratory sample**

in relation to chemical and physical testing, a final sample intended for laboratory testing and in relation to microbiological testing, each separate segment sample intended for laboratory testing

**3.4
reduction**

process of producing a representative smaller mass of material from a larger mass, with the remainder being discarded

3.5

test portion

quantity of material drawn from the test sample (or from the laboratory sample if both are the same) and on which the tests and observations are actually carried out

3.6

test sample

sample prepared from the laboratory sample and from which test portions will be taken

4 Principle

Reduction and division of the laboratory sample, as necessary, to produce test samples. Preparation of test portions from the test samples by division, with or without previous grinding, or by combination, as appropriate.

5 Apparatus

5.1 General

Apparatus used in the preparation and storage of samples shall be clean and dry and made from materials which will not affect the characteristics of the fertilizer.

5.2 Rotary sample divider, conforming to the requirements specified in prEN 1482-1:2023, 5.6.3, or **rifle divider** conforming to the requirements specified in prEN 1482-1:2023, 5.7.2.

5.3 Sample grinder, capable of taking the whole sample at one pass and preferably, totally enclosed. It shall have a screen, or other mechanism without a screen, which allows the ground material to pass through the machine into a collecting vessel and away from the cutters or grinding discs, to avoid over-grinding. In the case of a grinder with screens, the fineness of grind can be adjusted by the fitting of different mesh screens. Grinding shall continue until as much as possible of the fertilizer has passed through the machine.

NOTE If the grinder is of the open type, the moisture content of the fertilizer can change significantly during grinding.

Any machine used for grinding samples as required by this document shall be checked for satisfactory performance. Particular points to be checked are:

- a) the fineness of grinding achieved;
- b) the temperature rise of the material being ground (see 6.3);
- c) non-contamination of the sample.

5.4 Mortar and pestle, of suitable material and size.

5.5 Test sieves, conforming to ISO 3310-1 of nominal aperture sizes 1,0 mm, 0,5 mm and 0,18 mm.

In cases where national regulations or the nature of the material require sieves of different aperture sizes, these may be used but the fact should be noted in the sample preparation report.

5.6 Sample containers, made of plastics material and/or glass, or any other material of adequate resistance and fitted with air-tight closures.

prEN 1482-2:2023 (E)**6 Procedure****6.1 General**

All operations connected with this procedure shall be carried out as quickly as possible to minimize the absorption or loss of water.

For those laboratory samples that have to be stored for resistance to detonation testing or oil retention shall be kept between 0 °C and 25 °C, and that they shall not be ground.

6.2 Preparation of test samples in their original condition

Thoroughly mix the whole of the laboratory sample and follow one of the procedures described in prEN 1482-1:2023, Clause 6 to reduce (if necessary) and divide the total mass to obtain the appropriate number of representative test samples, each of about 0,5 kg in mass.

Reject, by random selection, any test samples in excess of those required and place the remaining *N* test samples in some of the air-tight containers (5.6).

NOTE The maximum number of test samples which can be produced by this method depends on the mass of the original laboratory sample. The minimum number of 0,5 kg test samples which is required depends on the nature of the analyses to be carried out and the number of replicates required. In some instances, when only chemical analyses are to be carried out and only a small laboratory sample is available, the whole of this sample is used as the test sample.

6.3 Further preparation of test samples which are to remain in their original condition**6.3.1 General**

Test samples in this category include all those for physical testing, those for certain chemical analyses and those which, by their nature, should not be ground.

6.3.2 Preparation of test portions for physical testing

If the mass of the test portion required is greater than 0,5 kg, select at random two or more of the *N* test samples (6.2). Mix these together and, if the mass required is not an exact multiple of 0,5 kg, reduce it to the required size by following one of the procedures described in prEN 1482-1:2023, Clause 6.

If the mass of test portion required is less than 0,5 kg, select at random one of the *N* test samples (6.2) and continue the reduction and division following one of the procedures described in prEN 1482-1:2023, Clause 6 until test portions of the required mass for the test are obtained. During the division process, replicate test portions are obtained, and these are suitable for replicate tests without further treatment. Discard any unwanted material.

The representativity of the sample might be lost during this further subdivision.

6.3.3 Preparation of test portions for moisture analysis

Do not grind test portions for moisture analysis if grinding is likely to alter the moisture content of the fertilizer.

NOTE Some types of grinding mill can alter the moisture content during processing. For example: single-pass hammer mills with interchangeable screens do not alter the moisture content; static sample mills of the coffee grinder type tend to reduce the sample moisture content unless the processing time is kept to an absolute minimum.

Cyclone type mills shall not be used as the rapid airflow in the cyclone causes a reduction in moisture content.

If necessary, the size of the larger particles can be reduced by crushing.