SLOVENSKI STANDARD
SIST EN ISO 7837:2002

01-november-2002

Gnojila - Določ evanje volumske gostote (brez pretresanja) drobnozrnatih gnojil (ISO 7837:1992)

Fertilizers - Determination of bulk density (loose) of fine-grained fertilizers (ISO 7837:1992)

Düngemittel - Bestimmung der Schüttdichte feinkörniger Düngemittel (ISO 7837:1992)

Engrais - Détermination de la masse volumique sans tassement des engrais fins (ISO 7837:1992)

Ta slovenski standard je istoveten z: **EN ISO 7837:2000**

ICS:

65.080 Gnojila Fertilizers

SIST EN ISO 7837:2002 **en**

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN ISO 7837

February 2000

ICS 65.080

English version

Fertilizers — Determination of bulk density (loose) of fine-grained fertilizers

(ISO 7837:1992)

Engrais — Détermination de la masse volumique sans tassement des engrais fins
(ISO 7837:1992)

Düngemittel — Bestimmung der Schüttdichte feinkörniger Düngemittel
(ISO 7837:1992)

This European Standard was approved by CEN on 3 January 2000.

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. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsiblity of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart 36, B-1050 Brussels

Ref. No. EN ISO 7837:2000 E

Foreword

The text of the International Standard from Technical Committee ISO/TC 134, Fertilizers and soil conditioners, of the International Organization for Standardization (ISO) has been taken over as a European Standard by Technical Committee CEN/TC 260, Fertilizers and liming materials, the Secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by August 2000, and conflicting national standards shall be withdrawn at the latest by August 2000.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom

Introduction

A method for the determination of the bulk density (loose) of solid fertilizers having particle sizes within the frequently encountered range from about 0,5 mm to 5 mm is specified in ISO 3944:1992, *Fertilizers — Determination of bulk density (loose).* This method is not, however, suitable for fine-grained fertilizers having a large proportion of particles of diameters less than 0,5 mm. Such fertilizers pass with difficulty, in most cases, from the specified funnel into the measuring cylinder, generally cause considerable dust nuisance, and are inclined to form hollow spaces (air cavities) within their bulk volume. The bulk density values obtained are, thus, too low.

In the case of fine-grained fertilizers, therefore, it is necessary to use a dust-tight, non-clogging apparatus, with a relatively wide measuring cylinder.

1 Scope

This International Standard specifies a method for the determination of the bulk density (loose) of solid fine-grained fertilizers.

The method is applicable to fertilizers which contain a large proportion of particles of diameters less than 0,5 mm.

NOTE 1 For fertilizers which contain a large proportion of particles of diameters within the range from 0,5 mm to 5 mm, a method is specified in ISO 3944.

The method is applicable to dry fertilizers only. If the fertilizer has absorbed moisture during transport or storage, it is necessary to dry it in an environmental chamber, with constant low humidity, prior to the determination.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 7742:1988, Solid fertilizers — Reduction of samples.

ISO 8358:1991, Solid fertilizers — Preparation of samples for chemical and physical analysis.

3 Definition

For the purposes of this International Standard, the following definition applies.

3.1
bulk density (loose) of a fertilizer
the mass per volume of a material after it has been tipped freely into a container under specified conditions

the bulk density (loose) is expressed in grams per cubic centimetre (g/cm^3)

4 Principle

Pouring of the fertilizer from a specified filling device into a specified measuring cylinder of known volume and weighing of the contents of the cylinder.

5 Apparatus

5.1 *Balance,* capable of weighing to the nearest 1 g.

5.2 *Apparatus for determination of bulk density (loose),* having the approximate dimensions given in Figure 1 and consisting of the following.

5.2.1 *Filling device (4)* with *spring-suspended locking lever (5),* for holding or loosening the hinged cover. The hinged cover is opened by manipulating the lever so that the contents of the filling device discharge into the measuring cylinder.

CAUTION — It is important that those parts of the apparatus which are in contact with the fertilizer are made of corrosion-resistant material (glass, plastics, etc.).

5.2.2 *Measuring cylinder (1),* of capacity 1 000 $cm^3 \pm 5$ cm^3.

5.2.3 *Intermediate piece (2)* with *hinged cover (3)*

5.3 *Spatula,* approximately 200 mm × 20 mm, or other suitable scraper.

6 Preparation of test sample

Prepare the test sample by the methods given in ISO 7742 and ISO 8358, ensuring that the sample is sufficient to carry out two separate determinations.

7 Procedure

Pour the fertilizer into the filling device (**5.2.1**) up to the brim. Open the hinged cover by manipulating the locking lever.

After 2 min, remove the empty filling device and the intermediate piece (**5.2.3**) from the measuring cylinder (**5.2.2**). Scrape away the surplus fertilizer from the measuring cylinder using the spatula or other suitable tool (**5.3**).

Weigh the contents of the measuring cylinder to the nearest 1 g.

Carry out two determinations, in rapid succession, on separate test portions taken from the same test sample.

8 Expression of results

8.1 Method of calculation

The bulk density (loose), ρ, of the fertilizer, in grams per cubic centimetre, is given by the equation

$$\rho = \frac{m}{V}$$

where

m is the mass, in grams, of the test portion;

V is the volume up to the brim, in cubic centimetres, of the measuring cylinder.

Take as the result the arithmetic mean of the two determinations provided that the requirement for repeatability (see **8.2**) is satisfied.

8.2 Repeatability

The difference between the results of two determinations, carried out in rapid succession by the same operator using the same apparatus, shall not exceed 0,02 g/cm^3.

9 Test report

The test report shall include the following particulars:

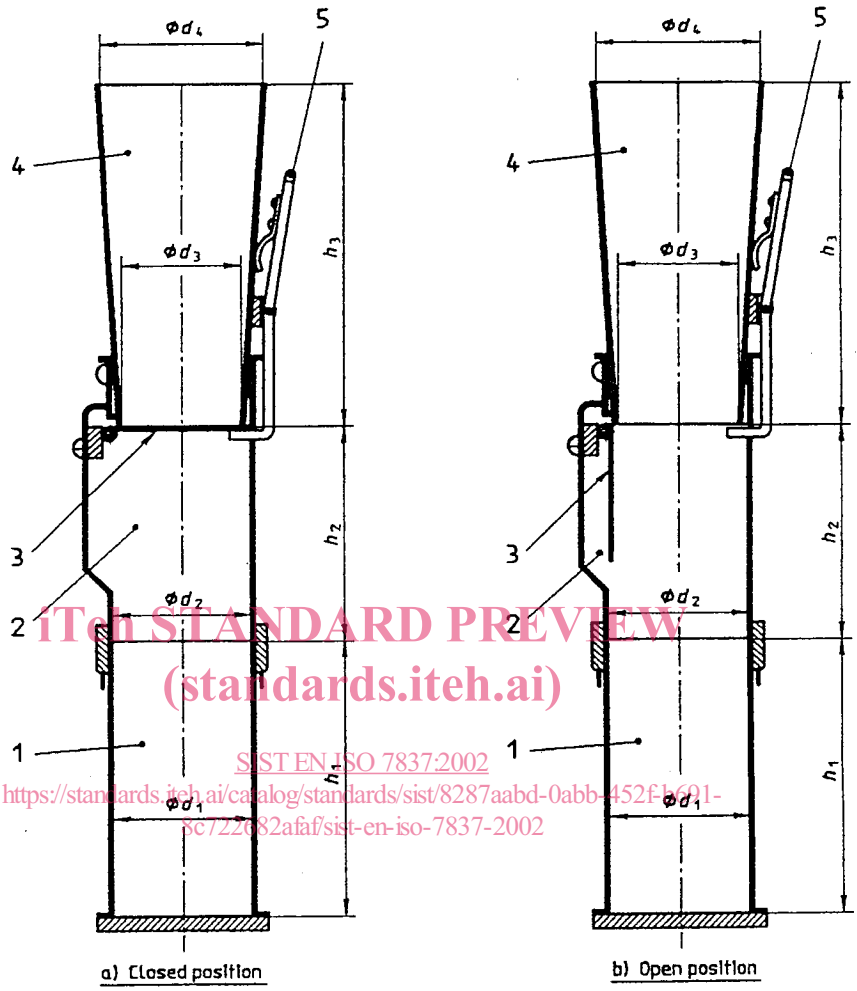
a) identification of the sample;

b) reference to the method used;

c) the result and the method of expression;

d) any unusual features noted during the determination;

e) any operation not included in this International Standard or regarded as optional.



1 Measuring cylinder
- Internal diameter — d_1 = 87 mm ± 1 mm
- Internal height — h_1 corresponding to a capacity of 1 000 cm³ ± 5 cm³

2 Intermediate piece
- Internal diameter — d_2 = 87 mm ± 1 mm
- Height — h_2 = 135 mm ± 1 mm

3 Hinged cover

4 Filling device
- Lower internal diameter — d_3 = 79 mm ± 1 mm
- Upper internal diameter — d_4 = 99 mm ± 1 mm
- Height — h_3 = 199 mm ± 1 mm

5 Spring-suspended locking lever

Figure 1 — Apparatus for determination of bulk density (loose) of fine-grained fertilizers