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NSAI Standards

Irish Standard
I.S. EN 1237:1995

Fertilizers - Determination of bulk density (tapped) (ISO 5311:1992 modified)

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This document is based on:	*Published:*
EN 1237:1995	2015-04-24

This document was published under the authority of the NSAI and comes into effect on:	ICS number:
1996-05-03	65.080
	NOTE: If blank see CEN/CENELEC cover page

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National Foreword

I.S. EN 1237:1995 is the adopted Irish version of the European Document EN 1237:1995, Fertilizers - Determination of bulk density (tapped) (ISO 5311:1992 modified)

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 1237

June 1995

ICS 65.080

Descriptors: fertilizers, tests, determination, bulk density, density measurement

English version

Fertilizers - Determination of bulk density (tapped) (ISO 5311:1992 modified)

Engrais - Détermination de la masse volumique après tassement (ISO 5311:1992 modifiée)

Düngemittel - Bestimmung der Rütteldichte (ISO 5311:1992 modifiziert)

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Comité Européen de Normalisation
Europäisches Komitee für Normung

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Ref. No. EN 1237:1995 E

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Foreword

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

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of an identical text or by endorsement, at the latest by December 1995, and conflicting national standards shall be withdrawn at the latest by December 1995.

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

Endorsement notice

The text of the International Standard ISO 5311:1992 was approved by CEN as a European Standard with agreed common modifications as given below :

This European Standard is based on ISO 5311:1992. Whereas the scope of ISO 5311 covers two methods :

- the machine-tapping method (method 1)
- the hand-tapping method (method 2).

The scope of this European Standard comprises the text of ISO 5311:1992 amended by the deletion of the hand-tapping method (method 2, clause 6) and the following minor amendments :

- in clause 1 "Scope" of ISO 5311 the applicability is limited to dry fertilizers only. This requirement has been amended to free flowing fertilizers. Furthermore a limit for particles with more than 5 mm in diameter has been set at 20 % ;

- the bulk density (tapped) is expressed in grams per cubic centimetre (g/cm^3) in ISO 5311, in this European Standard it is expressed in kilograms per cubic metres (kg/m^3).

- the normative references to International Standards ISO 7742:1988 and ISO 8358:1991 concerning methods of sampling and sample preparation have been deleted and the method used has to be indicated in the test report ;

- an informative annex ZA "Bibliography" has been added.

The common modifications have been inserted in the text of the reference document and indicated by a vertical line in the left margin.

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Introduction

The bulk densities (loose and tapped) of a fertilizer provide information relative to the required size of packaging materials, store-houses, stock-rooms, etc. Generally, the bulk density (tapped) is up to 10 % greater than the bulk density (loose), and sometimes it may exceed this value. Both bulk densities depend on the actual density, surface form and particle size of the fertilizers.

The bulk density (loose) can be used to calculate the maximum volume of a given weight of fertilizer which may be expected in practice. The actual volume occupied by a given weight of fertilizer will normally be within the range calculated from the bulk density (loose) and the bulk density (tapped).

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1 Scope

This International Standard specifies a method for the determination of the bulk density (tapped) of solid fertilizers, except powder fertilizers. The method is applicable to free flowing fertilizers.

The method is not suitable for materials which contain more than 20 % by mass of particles exceeding 5 mm in diameter.

Annex ZA lists the bibliography.

2 Normative references

The following standard contains 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 the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 3944:1992 Fertilizers - Determination of bulk density (loose)[1)]

3 Definition

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

3.1 Bulk density (tapped) of a fertilizer

The mass per volume of a materiel tipped into a container and then compacted under clearly specified conditions.

The bulk density (tapped) is expressed in kilograms per cubic metre (kg/m3).

4 Preparation of test sample

Prepare the test sample by appropriate methods ensuring that the sample is sufficient to carry out two separate determinations.

5 Method - Machine-tapping method

5.1 Principle

Pouring of the fertilizer from a specified funnel into a specified measuring cylinder of known volume, tapping by means of a tapping machine, and weighing of the contents of the cylinder.

5.2 Apparatus

5.2.1 Balance, capable of weighing to the nearest 1 g.

5.2.2 Apparatus for determination of bulk density (loose), according to ISO 3944, with a collar of transparent plastic and a measuring-cylinder holder with guide clamp (see figure 1).

5.2.3 Tapping machine, having a camshaft the cams of which lift the guide clamp, measuring-cylinder holder and measuring-cylinder once per revolution. The rotational frequency of the camshaft shall be (250 ± 15) revolutions . min^{-1}. (See figure 1).

5.2.4 Spatula, approximately 120 mm x 20 mm, or other suitable scraper.

5.3 Procedure

Pour into the closed funnel of the apparatus (5.2.2) a quantity of the fertilizer greater than that needed to fill the measuring cylinder.

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1) Technically identical with EN 1236.

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