
**Cereals — Determination of bulk density,
called mass per hectolitre —**

**Part 3:
Routine method**

*Céréales — Détermination de la masse volumique, dite masse
à l'hectolitre —*

Partie 3: Méthode pratique



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

This document is a preview generated by EVS



COPYRIGHT PROTECTED DOCUMENT

© ISO 2009

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

Contents

Page

Foreword.....	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principle	1
5 Apparatus	2
6 Procedure	2
6.1 General	2
6.2 Hand-operated instruments	2
6.3 Automatic instruments	3
6.4 Expression of results	3
7 Precision	3
7.1 Interlaboratory test	3
7.2 Repeatability	3
7.3 Reproducibility	3
7.4 Comparison of two groups of measurements in one laboratory	4
7.5 Comparison of two groups of measurements in two laboratories	4
7.6 Uncertainty	4
8 Test report	5
Annex A (informative) Description of dimensions and use of KERN apparatus	6
Annex B (informative) Description of dimensions and use of NILEMA LITRE apparatus	10
Annex C (informative) Results of interlaboratory tests	12
Bibliography	14

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 7971 (all parts) was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 338, *Cereal and cereal products*, in collaboration with Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 4, *Cereals and pulses*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

The first edition of ISO 7971-3 cancels and replaces the first edition of ISO 7971-2:1995, which has been technically revised.

ISO 7971 consists of the following parts, under the general title *Cereals — Determination of bulk density, called mass per hectolitre*:

- *Part 1: Reference method*
- *Part 2: Method of traceability for measuring instruments through reference to the international standard instrument*
- *Part 3: Routine method*

Cereals — Determination of bulk density, called mass per hectolitre —

Part 3: Routine method

1 Scope

This part of ISO 7971 specifies a routine method for the determination of bulk density, called “mass per hectolitre” of cereals as grain using manual or automatic, mechanical, electric or electronic mass per hectolitre measuring instruments.

NOTE Further details of the measuring instruments are specified in ISO 7971-2:2009, 6.4.

2 Normative references

The following referenced documents are indispensable for the application 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 7971-2, *Cereals — Determination of bulk density, called mass per hectolitre — Part 2: Method of traceability for measuring instruments through reference to the international standard instrument*

3 Terms and definitions

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

3.1

bulk density **“mass per hectolitre”**

⟨cereals⟩ ratio of the mass of a cereal to the volume it occupies after being poured into a container under well-defined conditions

NOTE 1 Bulk density is expressed in kilograms per hectolitre of grains as received.

NOTE 2 The bulk density, as defined in this part of ISO 7971, is different from “packing density” or “intrinsic density” of cereals.

[ISO 7971-1:2009]

4 Principle

The mass per hectolitre of a cereal is obtained from the mass of a volume of cereal determined under controlled sample filling and flow conditions.