

Paper, board, pulps and cellulosic nanomaterials -
Determination of dry matter content by oven-drying
method - Part 1: Materials in solid form (ISO
638-1:2021)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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ICS 85.040, 85.060

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EUROPEAN STANDARD

EN ISO 638-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

May 2021

ICS 85.040; 85.060

Supersedes EN ISO 638:2008

English Version

**Paper, board, pulps and cellulosic nanomaterials -
Determination of dry matter content by oven-drying
method - Part 1: Materials in solid form (ISO 638-1:2021)**

Papiers, cartons, pâtes et nanomatériaux cellulosiques
- Détermination de la teneur en matières sèches par
séchage à l'étuve - Partie 1: Matériaux sous forme
solide (ISO 638-1:2021)

Papier, Pappe, Faserstoff und cellulosehaltige
Nanomaterialien - Bestimmung des Trockengehaltes -
Wärmeschrankverfahren - Teil 1: Materialien in fester
Form (ISO 638-1:2021)

This European Standard was approved by CEN on 6 May 2021.

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

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

This document (EN ISO 638-1:2021) has been prepared by Technical Committee ISO/TC 6 "Paper, board and pulps" in collaboration with Technical Committee CEN/TC 172 "Pulp, paper and board" 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of an identical text or by endorsement, at the latest by November 2021, and conflicting national standards shall be withdrawn at the latest by November 2021.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 638:2008.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 638-1:2021 has been approved by CEN as EN ISO 638-1:2021 without any modification.

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 6, *Paper, board and pulps*.

This first edition of ISO 638-1, together with ISO 638-2, cancels and replaces ISO 638:2008, which has been technically revised. The main changes compared to the previous edition are as follows:

- inclusion of cellulosic nanomaterials and paper and board for recycling in the scope;
- splitting of the standard in two parts;
- technical revision of the procedure;
- editorial revision of the document;
- update of precision clause.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Determination of dry matter content and moisture content are carried out for different purposes.

This document is used when the dry matter content is needed to calculate the results for chemical analysis or physical testing, or to determine the moisture content of paper, board, and pulp and cellulosic nanomaterials in solid form, which all may be produced from virgin and/or recycled materials. An example of this is where the results of a chemical analysis for cadmium or manganese are required on the basis of the oven-dry mass of the sample.

ISO 638-2^[1] is dedicated to the determination of the dry matter content or water content of cellulosic nanomaterials in the form of suspensions.

ISO 287^[2] should be used for the purpose of determining the average moisture content and the variation in moisture content (maximum and minimum values) of a lot of paper and board. In the converting of paper and board, moisture content is important as it can have an effect on processes such as printing and copying. Moisture content can have an effect on curl and dimensional stability.

ISO 4119^[3] should be used in laboratory procedures or is referred to in other International Standards in which the concentration of an aqueous pulp suspension requires determination.

Paper, board, pulps and cellulosic nanomaterials — Determination of dry matter content by oven-drying method —

Part 1: Materials in solid form

1 Scope

This document specifies an oven-drying method for the determination of the dry matter content in paper, board, pulp and cellulosic nanomaterials in solid form, which all can be produced from virgin and /or recycled materials.

It is also applicable to the determination of the dry matter content of paper and board for recycling.

The procedure is applicable to paper, board, and pulp and cellulosic nanomaterials which do not contain any appreciable quantities of materials other than water that are volatile at the temperature of $105\text{ °C} \pm 2\text{ °C}$. It is used, for example, in the case of pulp, paper, and board and cellulosic nanomaterial samples taken for chemical and physical tests in the laboratory, when a concurrent determination of dry matter content is required.

This method is not applicable to the determination of the dry matter content of slush pulp or to the determination of the saleable mass of pulp lots.

NOTE 1 ISO 638-2^[1] specifies an oven-drying method for the determination of the dry matter content of suspensions of cellulosic nanomaterials, ISO 287^[2] specifies the determination of the moisture content of a lot of paper and board; ISO 4119^[3] specifies the determination of stock concentration of pulps; ISO 801 (all parts)^[4] specifies the determination of the saleable mass in lots.

NOTE 2 This document determines the total dry matter content of the sample, including any dissolved solids. If only the cellulosic material content free of dissolved solids is desired, dissolved solids are removed prior to measuring the dry matter content e.g. by washing or dialysis, taking care to retain all cellulosic material; in cases where the sample is filterable without loss of cellulosic solids, ISO 4119^[3] can be used to determine the stock consistency (content of cellulosic material in solid form)

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.

ISO 186, *Paper and board — Sampling to determine average quality*

ISO 7213, *Pulps — Sampling for testing*

EN 17085, *Paper and board – Sampling procedures for paper and board for recycling*

3 Terms and definitions

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