
**Tissue paper and tissue products —
Part 1:
Vocabulary**

*Papier tissue et produits tissue —
Partie 1: Vocabulaire*

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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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, 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. (standards.iteh.ai)

This document was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 172, *Pulp, paper and board*, in collaboration with Technical Committee ISO/TC 6, *Paper, board and pulps*, Subcommittee SC 2, *Test methods and quality specifications for paper and board*, in accordance with the Agreement on Technical Cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 12625-1:2011), which has been technically revised. The main changes compared to the previous edition are as follows:

- change of the number of terms to those which directly concern tissue;
- the alphabetical index has been restructured because of the merging and addition of “term groups”;
- editorial updates.

A list of all parts in the ISO 12625 series can be found on the ISO website.

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

This document defines terms for the determination of the physical properties of tissue paper manufactured using creping or un-creped techniques, and includes products made using a combination of these tissue-making processes.

Tissue products form an important and growing market for single-use disposable hygiene and industrial products. The current range of these familiar products includes toilet tissue, facial tissue, kitchen/household towels, hand towels, handkerchiefs, table napkins, mats, industrial wipes, other absorbent tissue papers and lotion-treated products.

Tissue-paper-manufacturing technology has evolved and diverged from "ordinary" paper technology so that a new glossary has become necessary.

The purpose of this document is to allow a common understanding of the various tissue-making terms between tissue manufacturers, tissue converters and tissue customers, and to facilitate the harmonization of testing methods. Each listed term is briefly defined and, where this was thought to be useful, an example is given. While elaborating this document, English was chosen as the original language. It was then stated that some expressions cannot be translated into another language. For those cases, the English expression is used.

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Tissue paper and tissue products —

Part 1: Vocabulary

1 Scope

This document establishes general principles for the use of terms in the entire working field of tissue paper and tissue products.

It permits the use of a common terminology in industry and commerce.

It is expressly stated that ISO 15755 applies for the detection of impurities and contraries in tissue paper and tissue products.

For the determination of moisture content in tissue paper and tissue products, ISO 287 applies.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

absorbency

ability of a *tissue paper* (3.58) and/or a *tissue product* (3.59) to take up a liquid

3.2 Absorption

3.2.1

absorption capacity

mass of liquid that is absorbed per unit mass of the test piece

Note 1 to entry: Water-absorption capacity is defined in ISO 12625-8.

3.2.2

absorption rate

mass of liquid that is absorbed by a test piece per unit time, determined by dividing the total mass of liquid that is absorbed over a given time period by the duration of the period

3.2.3

absorption time

time required for complete wetting of a sample

[SOURCE: ISO 12625-8:2010, 3.1]

**3.3
accelerated ageing**

procedure which allows for the fast prediction of changes in the characteristics of *tissue paper* (3.58) or *tissue product* (3.59) that occur in normal conditions over a longer time

Note 1 to entry: This is particularly the case for wet strength tissue paper or tissue product for which the wet resistance occurs over time. An accelerated ageing procedure for determining wet strength is specified in ISO 12625-5.

**3.4
apparent bulk density**

mass per unit volume of *tissue paper* (3.58) or *tissue product* (3.59), calculated from its *grammage* (3.28) and *bulking thickness* (3.10)

Note 1 to entry: It is determined from the grammage of the tissue paper or the tissue product divided by the thickness determined on a stack of that tissue.

[SOURCE: ISO 12625-3:2014, 3.4]

**3.5
away-from-home tissue products
AFH tissue products**

tissue products (3.59) intended for use in the institutional and industrial markets

EXAMPLE Tissue products used in hospitals, restaurants, hotels, offices.

**3.6
base paper**

single-ply tissue paper sheet produced as a semi-finished product intended to be converted to a finished product

**3.7
base sheet forming**

wet forming of a web on one, or between two, endless running wires or between one wire and a felt, producing an endless sheet of tissue with a *grammage* (3.28) typically between 10 g/m² and 50 g/m²

3.8 Brightness

**3.8.1
D65 brightness**

intrinsic radiance (reflectance) factor measured with a reflectometer having the characteristics described in ISO 2469, equipped with a filter or corresponding function having an effective wavelength of 457 nm and a half-peak bandwidth of 44 nm, and adjusted so that the UV content of the irradiation incident upon the test piece corresponds to that of the CIE standard illuminant D65

[SOURCE: ISO 2470-2:2008, 3.4, modified — Symbol $R_{457,D65}$ and Note 1 to entry were removed.]

**3.8.2
C brightness**

ISO brightness
intrinsic diffuse radiance (reflectance) factor measured with a reflectometer having the characteristics described in ISO 2469, equipped with a filter or corresponding function having an effective wavelength of 457 nm and a half bandwidth of 44 nm, and adjusted so that the UV content of the irradiation incident upon the test piece corresponds to that of the CIE illuminant C

[SOURCE: ISO 2470-1:2016, 3.4, modified — Preferred term "C brightness" added, and symbol R_{457} and Note 1 to entry removed.]

**3.9
bulk**

inverse of *apparent bulk density* (3.4)

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3.10**bulking thickness**

thickness of a single sheet of *tissue paper* (3.58) or *tissue product* (3.59), calculated from the thickness of several superimposed sheets, measured under the applied static load

[SOURCE: ISO 12625-3:2014, 3.3]

3.11**calendering**

mechanical treatment of base sheet being passed in the nip between two smooth cylinders with the aim of improving the smoothness or *surface softness* (3.52.2) of a *tissue paper* (3.58) or *tissue product* (3.59)

Note 1 to entry: This operation is carried out by means of a calender. In addition, this process permits some control of the thickness of tissue paper or tissue product.

3.12**cellulose wadding**

creped web or sheet of open formation, made of cellulosic fibres (mainly chemical pulp) and comprising one or more plies of lightweight paper

Note 1 to entry: An open formation is obtained when paper is produced at low basis weight and high stretch (usually more than 35 %).

Note 2 to entry: Soft crepe paper of very low grammage, normally used in bundles or pads containing several sheets.

[SOURCE: ISO 4046-4:2016, 4.37, modified — (mainly chemical pulp) added and Note 1 to entry and Note 2 to entry added]

3.13**cloth-like feel**

attribute of a *tissue paper* (3.58) or *tissue product* (3.59) such that it resembles the feel of a woven cloth material

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3.14 Colour**3.14.1****CIELAB colour space**

three-dimensional approximately uniform colour space, produced by plotting in rectangular coordinates L^* , a^* , b^*

Note 1 to entry: The quantity L^* is a measure of the lightness of the test piece, where $L^* = 0$ corresponds to black and $L^* = 100$ is defined by the perfect reflecting diffuser. Visually, the quantities a^* and b^* represent respectively the red-green and yellow-blue axes in colour space, such that

- $+a^*$ is a measure of the degree of redness of the test piece,
- $-a^*$ is a measure of the degree of greenness of the test piece,
- $+b^*$ is a measure of the degree of yellowness of the test piece, and
- $-b^*$ is a measure of the degree of blueness of the test piece.

If both a^* and b^* are equal to zero, the test piece is grey.

[SOURCE: ISO 5631-3:2015, 3.6, modified — Note 1 to entry added]

3.14.2**CIELAB colour (D65/10°)**

L^* , a^* and b^* values of the sample according to the CIELAB 1976 system, evaluated according to the CIE 1964 (10°) standard colorimetric observer and the CIE standard illuminant D65

Note 1 to entry: See ISO 12625-7 for further information.

[SOURCE: ISO/TR 10688:2015, 2.5.2, modified — Preferred term "(L*, a*, b*)" removed, preferred term CIELAB colour (D65/10°) and Note 1 to entry added]

3.14.3

CIELAB colour (C/2°)

L*, a* and b* values of the sample according to the CIELAB 1976 system, evaluated according to the CIE 1931 (2°) standard colorimetric observer and the CIE illuminant C

Note 1 to entry: See ISO 12625-15 for further information.

[SOURCE: ISO/TR 10688:2015, 2.5.1, modified — Preferred term "(L*, a*, b*)" removed, preferred term CIELAB colour (C/2°) and Note 1 to entry added]

3.15

conventional wet pressing

CWP

tissue-making process by which the wet-formed web is pressed against the *Yankee cylinder* (3.63) while supported by a felt, and entirely dried by the Yankee cylinder

3.15.1

Yankee coating

coating package

combination of adhesive/release agent and potentially other chemical additives applied to the *Yankee cylinder* (3.63) prior to the creping operation in order to ensure a homogeneous and even contact between the *tissue paper* (3.58) web and the drying cylinder, and induce an easy release of the web from the creping blade

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3.15.1.1

adhesive

component of *Yankee coating* (3.15.1) delivering specific adhesion, durability and hardness characteristics

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3.15.1.2

modifier

component of *Yankee coating* (3.15.1) that changes its physical properties

Note 1 to entry: For example, plasticizers, corrosion inhibitors and emulsifiers.

3.15.1.3

release

component of *Yankee coating* (3.15.1) responsible for the reduction of creping blade friction, regulating adhesion and ensuring proper removal of the tissue sheet from the *Yankee cylinder* (3.63)

3.15.2

coating in converting

process to apply additives (chemicals, lotion) onto the tissue sheet during converting

Note 1 to entry: The term "coating" has a different meaning in the tissue industry from that in the printing and writing paper manufacturing industry. In the paper industry, the term "coating" refers to

- a layer of a pigment/binder composition applied to the surface of a paper or board having an impact on the surface structure, the optical appearance and the optical and printing behaviour of the coated product, and
- the process of applying a coating composition.

3.16 converting

manufacturing of a *tissue product* (3.59) by a process or operation applied after the papermaking process

Note 1 to entry: For example, unwinding and winding procedures, the assembling of tissue base paper to single or multi-ply webs, their calendering, embossing, laminating, perforating, cutting in the machine direction (MD) or cross direction (CD), winding of small rolls for end-user purposes, folding in the machine direction and/or cross direction, stacking of the separated folded sheets and all kinds of packaging. Converting may include lotion treatment and printing.

3.17 core

tube around which paper is wound to form a reel or a roll of finished product

Note 1 to entry: A core is usually constructed as a one- or multi-ply wall of paper wound and laminated with an adhesive.

Note 2 to entry: Some rolls of finished products may have no core.

3.18 creping

process by which the web is mechanically removed from the *Yankee cylinder* (3.63) by a blade in the machine direction in order to change its properties, which include stretch, thickness, strength and softness

Note 1 to entry: It is a major part of the tissue-making process.

Note 2 to entry: Creping is included in terms 3.18.1 to 3.18.6.

Note 3 to entry: The *Yankee cylinder* (3.63) is usually protected by a coating layer.

3.18.1 creped paper

thin, lightweight paper that has been subjected to creping action on a tissue machine

Note 1 to entry: Creped paper shall not be confused with "crepe" paper which is a type of creped paper that has not been stretched and is often used for decoration and packing material.

3.18.2 creping doctor blade

sharp thin blade that is pressed against the *Yankee cylinder* (3.63) of a tissue machine under high pressure and at a specific angle in order to remove the web from the cylinder

3.18.3 double creped paper

tissue paper (3.58) creped in two consecutive process steps

Note 1 to entry: The second creping cylinder downstream of the main *Yankee cylinder* (3.63) usually works on the opposite paper side.

3.18.4 dry creped paper

tissue paper (3.58) manufactured using a dry creping process

Note 1 to entry: A typical example is creping by means of a *creping doctor blade* (3.18.2) against a *Yankee cylinder* (3.63) of an almost dry sheet with a dry matter content typically between 95 % and 98 %.

3.18.5 uncreped tissue paper

tissue paper (3.58) typically obtained from a *TAD* (3.56) process in which the sheet is dried completely in the TAD section with no creping step on a *Yankee cylinder* (3.63)