



International
Standard

ISO 5530-1

**Wheat flour — Physical
characteristics of doughs —**

Part 1:

**Determination of water absorption
and rheological properties using a
farinograph**

Farines de blé tendre — Caractéristiques physiques des pâtes —

*Partie 1: Détermination de l'absorption d'eau et des
caractéristiques rhéologiques au moyen du farinographe*

**Fifth edition
2026-01**

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Published in Switzerland

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

This fifth edition cancels and replaces the fourth edition (ISO 5530-1:2025), of which it constitutes a minor revision.

The changes are as follows:

- the values in [B.5.1](#) have been modified.

A list of all parts in the ISO 5530 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.

Wheat flour — Physical characteristics of doughs —

Part 1:

Determination of water absorption and rheological properties using a farinograph

1 Scope

This document specifies a method using a farinograph for the determination of the water absorption of flours and the mixing behaviour of doughs made from them by a constant flour mass procedure or by a constant dough mass procedure.

The method is applicable to experimental and commercial flours from wheat (*Triticum aestivum* L.).

NOTE This document is related to ICC 115/1^[5] and AACC Method 54-21.02^[6].

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 712-1, *Cereals and cereal products — Determination of moisture content — Part 1: Reference method*

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

3 Terms and definitions

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

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

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

3.1 consistency

resistance of a dough to being mixed in specific conditions

Note 1 to entry: For the purposes of this document, consistency refers to the resistance of dough being mixed in a farinograph under the conditions specified in the methodology.

Note 2 to entry: It is expressed in *farinograph unit (FU)* (3.2).

Note 3 to entry: Specific conditions include mixing conditions, temperature, hydration, etc.

3.2 farinograph unit FU

arbitrary unit used for *consistency* (3.1) on the farinogram

Note 1 to entry: For the mathematical expression of FU, see 6.1.

Note 2 to entry: It is also possible to define an FU as a torque expressed in Nm, measured in the axis of the mixer.

3.3

maximum consistency

consistency (3.1) measured at the end of the *dough development time* (3.5)

Note 1 to entry: For the mathematical expression of maximum consistency, see 9.3.

Note 2 to entry: It is expressed in *farinograph unit (FU)* (3.2).

3.4

water absorption of flour

Wa

volume of water required to produce a dough with a *maximum consistency* (3.3) of 500 *farinograph unit (FU)* (3.2) under the specified operating conditions

Note 1 to entry: Water absorption is expressed in millilitres per 100 g of flour at 14 % (mass fraction) moisture content to an accuracy of 0,1 ml.

Note 2 to entry: Water absorption can also be expressed in % (ml per 100 g).

3.5

dough development time

DDT

DEPRECATED: peak time

time from the beginning of the addition of water to the point on the curve immediately before the first sign of the decrease of *maximum consistency* (3.3)

Note 1 to entry: In cases where two peaks are observed, the second peak shall be used to measure the DDT.

Note 2 to entry: See [Figure 1](#) and 9.3.

Note 3 to entry: It is expressed in minutes to the nearest 0,1 min.

3.6

stability

difference in time between the point where the top part of the curve intercepts, for the first time, the line of 500 *farinograph unit (FU)* (3.2) and the last point where leaves this line

Note 1 to entry: This value measures the tolerance of the flour to mixing.

Note 2 to entry: When the *maximum consistency* (3.3) of a peak curve deviates from the 500 FU line, the line of this consistency should be used to read the interceptions (see also [B.5.2](#)).

Note 3 to entry: The stability is expressed in minutes, to an accuracy of 0,5 min.

3.7

degree of softening

difference between the height of the centre of the curve at the point where it begins to decline (*dough development time* (3.5)) and the height of the centre of the curve 12 min after that point

Note 1 to entry: It is expressed in *farinograph unit (FU)* (3.2).

Note 2 to entry: In cases where two peaks appear, the second peak is considered to determine the degree of softening.

Note 3 to entry: The degree of softening should be expressed to the nearest 5 farinograph unit (FU).

Note 4 to entry: This definition is equivalent to ICC 115/1^[5].