International Standard

ISO 17715

Flour from wheat (*Triticum aestivum* L.) — Amperometric method for starch damage measurement

*Farine de blé tendre (*Triticum aestivum *L.) — Méthode ampérométrique pour le mesurage de l'endommagement de l'amidon*

Second edition
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Foreword

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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 second edition cancels and replaces the first edition (ISO 17715:2013), which has been technically revised.

The main changes are as follows:

— possibility to use a ready-to-use solution of sodium thiosulfate has been added.

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Introduction

Damaged starch content is an important parameter in flour quality as it directly influences the flour water absorption capacity and therefore its use in the agri-food industry.

In the past, a number of methods based on various principles were developed to estimate such content, but comparing the results is difficult due to the different principles and units of measurement used.

A laboratory device is dedicated to the determination of damaged starch content using an amperometric method and which offers a choice of units of measurement according to individual references.

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Flour from wheat (*Triticum aestivum* L.) — Amperometric method for starch damage measurement

1 Scope

This document specifies an amperometric method to determine the content of damaged starch in flour.

It is applicable to all flour samples from the industrial or laboratory milling of wheat (*Triticum aestivum* L.).

NOTE 1 Wheat can be milled in the laboratory in accordance with the methods described in ISO 27971[9] or in the BIPEA guidance document BY.102.D[10].

NOTE 2 In the absence of validity studies, the results on semi-wholemeal or wholemeal flour, although able to meet the conditions of repeatability given in Clause 9, require careful interpretation.

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 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
damaged starch
starch granules present in wheat flour mechanically damaged during milling, leading to a greater capacity to absorb water and increasing susceptibility to amylolytic enzymes

Note 1 to entry: A damaged starch content that is too high has a negative effect on quality of flours.

4 Principle

Determination of damaged starch content of a flour sample by measurement of iodine absorption kinetics in an aqueous medium using an amperometric electrode.

The amperometric method is based on the existing proportionality between iodine absorption capacity and starch damage content.

5 Reagents

Use only reagents of recognized analytical grade, unless otherwise specified.

5.1 **Water**, osmosed or demineralized or at least equivalent grade.

5.2 **Boric acid** or **citric acid**, powdered, for testing.

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