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BS ISO 17715:2013



BSI Standards Publication

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

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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



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Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
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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.

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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 17715 was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 4, *Cereals and pulses*.

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Introduction

Damaged starch content is an important parameter in flour quality as it directly impacts 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 International Standard specifies the determination of the damage to starch using an amperometric method.

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

NOTE 1 Wheat can be milled in the laboratory according to the methods described in ISO 27971[9] or in BIPEA guidance document BY.102.D.9302.[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 Terms and definitions

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

2.1

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: Too high a damaged starch content has a negative effect on quality of flours.

3 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.

4 Reagents

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

4.1 Water, osmosed or demineralized or at least equivalent grade.

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

WARNING — The use of boric acid involves hazardous operations. This document does not purport to address all the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.

4.3 Potassium iodide, powdered, for testing.

4.4 Sodium thiosulfate, solution in water at 0,1 mol/l prepared from a ready-to-use vial containing 0,1 mol sodium thiosulfate, to be diluted with water ([4.1](#)) in a 1 l flask. Powdered sodium thiosulfate can