

Methods of test for

Cereals and pulses —

**Part 29: Determination of impurities of
animal origin in wheat flour and durum
wheat semolina**

UDC [664.641.12 + 664.762]:544.869

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The preparation of this British Standard was entrusted by the Agriculture and Food Standards Policy Committee (AFC/-.) to Technical Committee AFC/4, upon which the following bodies were represented:

- Agricultural Engineers' Association
- Association of Public Analysts
- British Edible Pulse Association
- Department of Trade and Industry (National Weights and Measures Laboratory)
- Flour Milling and Baking Research Association
- Grain and Feed Trade Association
- Home Grown Cereals Authority
- Institute of Brewing
- Institute of Food Science and Technology
- Intervention Board for Agricultural Produce
- Ministry of Agriculture, Fisheries and Food
- NABIM
- National Association of Commodity Cargo Superintendents and Surveyors
- National Farmers' Union
- Natural Resources Institute
- Processors and Growers Research Organization
- Silsoe Research Institute
- United Kingdom Agricultural Supply Trade Association Ltd.

This British Standard, having been prepared under the direction of the Agriculture and Food Standards Policy Committee, was published under the authority of the Standards Board and comes into effect on 15 October 1993

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The following BSI references relate to the work on this standard:
Committee reference AFC/4
Draft for comment 91/55373 DC

ISBN 0 580 22544 5

Amendments issued since publication

Amd. No.	Date	Comments

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National foreword

This Part of BS 4317 has been prepared, under the direction of the Agriculture and Food Standards Policy Committee. It is identical with ISO 11050:1993 *Wheat flour and durum wheat semolina — Determination of impurities of animal origin*, published by the International Organization for Standardization (ISO), and in the preparation of which the United Kingdom played a full part.

Cross-reference

International Standard	Corresponding British Standard
ISO 2170:1980	BS 5333:1981 <i>Methods for sampling cereals and pulses (as milled products)</i> (Identical)

Additional information. With reference to clause 4, water conforming to grade 3 of BS 3978:1987 *Specification for water for laboratory use is suitable*.
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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, an inside back cover and a back cover.
This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

This International Standard specifies a method for determining the content of impurities of animal origin in wheat flours, with or without additives and having an ash yield not exceeding 0,63 % (*m/m*), and in durum wheat semolinas.

This method permits the separation and quantification of contamination of animal origin, e.g. insects at all stages of their development, insect fragments, mites and their fragments, and rodent hairs and their fragments.

2 Definition

For the purposes of this International Standard, the following definition applies.

2.1

impurities of animal origin

matter of animal origin (eggs, larvae, nymphs or adults of insects and their fragments, rodent hairs and their fragments, mites and their fragments) separated from the product under the conditions specified in this International Standard

3 Principle

Hydrolysis of a test portion with a solution of hydrochloric acid at boiling point. Concentration of the insoluble particles (impurities other than those of animal origin may be present) at a water/hydrocarbon interface. Separation by filtration on a filter paper or membrane, microscopic examination, and counting under reflected light, of the impurities of animal origin.

4 Reagents

Use only reagents of recognized analytical grade and distilled or demineralized water or water of equivalent purity.

All the reagents used shall be filtered carefully before use or after their preparation. Such filtration may be performed using a filter cloth with a maximum mesh size of 10 μm to 30 μm and which is resistant to acids and solvents (of the nylon or polyethylene fibre type).

4.1 *Ethanol or methanol*, 95 % (V/V).

4.2 *Ethanol or methanol solution*, 50 % (V/V).

4.3 *Ethanol/glycerol*, 1 + 1 mixture by volume.

4.4 *Hydrochloric acid solution*, concentrated ($\rho_{20} = 1,18 \text{ g/ml}$).

4.5 *Paraffin oil* (known as "Vaseline oil"), fluid, having a viscosity not exceeding 60 mPa s (60 cP) at 20 °C.

4.6 *Liquid detergent*, non-foaming.

4.7 *Liquid detergent*, 1 % (V/V) solution of the detergent (4.6) in a washing bottle.

5 Apparatus

Usual laboratory apparatus and, in particular, the following.

5.1 *Separating funnels*, conical, of 1 000 ml capacity, fitted with a non-lubricated tap with a flexible tube and a Mohr clip (rubber-tube clip) (see the recommended set-up shown in Figure 1).

5.2 *Tall-form beaker*, of 800 ml capacity, fitted with a watch glass made of pyrex and of appropriate dimensions to serve as a lid.

5.3 *Crystallizing dish or pan*, of at least 5 litre capacity, and of a height slightly less than that of the beaker (5.2), suitable for use as a cooling bath.

5.4 *Graduated cylinders*, of 25 ml, 50 ml and 500 ml capacity.

5.5 *Washing bottles*, of 1 litre capacity, graduated in 50 ml increments, and fitted with a flexible tube.

5.6 *Stretchable protective film*, waxed or made of a plastic material.

5.7 *Filter paper*, ash-free, with rapid filtration characteristics¹⁾, of diameter corresponding to that of the filtration unit (5.8) (i.e. 50 mm or 90 mm), or *filtration membrane*, of 47 mm to 50 mm diameter, made of cellulose nitrate and having a porosity of 5 μm or 8 μm , on which fine parallel lines are drawn, spaced 5 mm apart, using a ball-point pen or hard lead pencil.

5.8 *Filtration unit*, of the Büchner funnel type, suitable for accommodating the filter (5.7), and fitted with a conical adaptor bung for connection to the filtration flask (5.16).

5.9 *Analytical balance*, accurate to within 0,1 g.

5.10 *Optical microscope or stereoscopic microscope*, known as a "binocular magnifying glass", capable of producing magnifications close to $\times 25$ and $\times 50$, of very high optical quality, used in conjunction with

- a) *eyepieces*, producing a magnification of $\times 15$ or $\times 20$ (thus enabling a total maximum magnification of the object being observed of $\times 75$ or $\times 80$ depending on the model), and
- b) a *micrometer eyepiece*, to measure the dimensions of any impurities.

¹⁾ Whatman 41 is an example of a suitable filter paper available commercially. This information is given for the convenience of users of this International Standard and does not constitute an endorsement by ISO of this product.