

Methods of analysis of fats and fatty oils —

Part 1: Physical methods —

Section 1.3: Determination of melting point (slip point)

IMPORTANT NOTE. It is essential that BS 684-0, which is published separately, be read in conjunction with this Section.

ICS 67.100.10

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Agriculture and Food Standards Policy Committee (AFC/-) to Technical Committee AFC/18, upon which the following bodies were represented:

- AFRC Institute of Food Research
- Association of Public Analysts
- British Food Manufacturing Industries Research Association
- Department of Trade and Industry (Laboratory of the Government Chemist)
- FOSFA International
- Institute of Biology
- International Association of Seed Crushers
- International Federation of Inspection Agencies
- Margarine and Shortening Manufacturers' Association
- Ministry of Agriculture, Fisheries and Food
- Natural Resources Institute
- Royal Society of Chemistry
- Seed Crushers' and Oil Processors' Association
- Soap and Detergent Industry Association
- Society of Chemical Industry
- Tropical Growers' Association
- United Kingdom Renderers' Association Ltd.

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National foreword

This Section of BS 684 has been prepared under the direction of the Agriculture and Food Standards Policy Committee. It is identical with ISO 6321:1991, *Animal and vegetable fats and oils — Determination of melting point in open capillary tubes (slip point)*, published by the International Organization for Standardization (ISO), in the preparation of which the United Kingdom played an active part. This British Standard supersedes BS 684-1.3:1976 which is withdrawn and from which it differs in that changes to the diameters of capillary tubes and to the procedures for the preparation of the tubes have been made.

Cross-references

International standard	Corresponding British Standard
ISO 661:1989	BS 684 <i>Methods of analysis of fats and fatty oils</i> Part 0:1989 <i>General introduction, Appendix B</i> (Identical)
ISO 5555:1991	BS 627:1991 <i>Methods for sampling animal and vegetable fats and oils</i> (Identical)
ISO 5725:1986	BS 5497 <i>Precision of test methods</i> Part 1:1987 <i>Guide for the determination of repeatability and reproducibility for a standard test method by inter-laboratory tests</i> (Identical)

Foreword to Amendment A1:1998

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.

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.

Amendment 1 to International Standard ISO 6321:1991 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*, Subcommittee SC 11, *Animal and vegetable fats and oils*.

Annex A forms an integral part of this International Standard.

Annex B is for information only.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

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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.

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Sidelining in this document indicates the most recent changes by amendment.

1 Scope

This International Standard specifies two methods for the determination of the melting point in open capillary tubes, commonly known as the slip point, of animal and vegetable fats and oils (referred to as fats hereinafter).

— Method A is only applicable to animal and vegetable fats which are solid at ambient temperature and which do not exhibit pronounced polymorphism.

— Method B is applicable to all animal and vegetable fats which are solid at ambient temperature, and is the method to be used for fats whose polymorphic behaviour is unknown.

A method for determination of the melting point of palm oil samples is given in Annex A.

NOTE 1 If applied to fats with pronounced polymorphism method A will give different and less satisfactory results than method B.

NOTE 2 Fats which exhibit pronounced polymorphism are principally cocoa butter and fats containing appreciable quantities of 2-unsaturated, 1,3-saturated triacylglycerol.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 661:1989, *Animal and vegetable fats and oils — Preparation of test sample*.

ISO 5555:1991, *Animal and vegetable fats and oils — Sampling*.

3 Definition

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

3.1

melting point (in open capillary tubes)

slip point

the temperature at which a column of fat in an open capillary tube commences to rise under the conditions specified in this International Standard

4 Principle

Immersion of a capillary tube, containing a column of the fat which has been crystallized under controlled conditions, to a specified depth in water, the temperature of which is increased at a specified rate. Recording of the temperature at which the column is observed to start rising in the capillary tube.

5 Apparatus

Usual laboratory apparatus and, in particular, the following.

5.1 Capillary tubes, having uniform walls and which are open at both ends, of internal diameter 1,0 mm to 1,2 mm, external diameter 1,3 mm to 1,6 mm, wall thickness 0,15 mm to 0,20 mm and length 50 mm to 60 mm.

Check the internal and external diameters of the capillary tubes using a test gauge such as that shown in Figure 1.

Before use, clean the tubes thoroughly by washing them successively with a mixture of chromic acid, water and acetone, and then dry them in an oven. It is recommended that new tubes be used.

5.2 Thermometer, graduated in divisions of 0,1 °C, calibrated over the range of melting points expected.

5.3 Stirrer, electrical.

5.4 Cooling bath, filled with brine or other non-freezing liquid, thermostatically maintained at a temperature of –10 °C to –12 °C, or filled with a mixture of flaked ice and salt (in the proportions 2 to 1 by mass) at a temperature of –10 °C to –12 °C.