INTERNATIONAL STANDARD

ISO 6321

First edition
1991-09-01

AMENDMENT 1
1998-03-15

Animal and vegetable fats and oils — Determination of melting point in open capillary tubes (slip point)

AMENDMENT 1: Palm oil samples

Corps gras d'origines animale et végétale — Détermination du point de fusion en tube capillaire ouvert

AMENDEMENT 1: Échantillons d'huile de palme

Reference number
ISO 6321:1991/Amd.1:1998(E)

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.

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.

International Organization for Standardization
Case postale 56 • CH-1211 Genève 20 • Switzerland
Internet central@iso.ch
X.400 c=ch; a=400net; p=iso; o=isocs; s=central

Printed in Switzerland

Animal and vegetable fats and oils — Determination of melting point in open capillary tubes (slip point)

AMENDMENT 1: Palm oil samples

Page 1, clause 1

Add the following phrase before the Notes:

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

Page 5, subclause 10.1

Add the following phrase at the end of this subclause:

"The results of interlaboratory tests on palm oil samples are given in annex B."

Page 6

Add annexes A and B.

Annex A
(normative)

Method for palm oil samples

Melt the sample and filter through a filter paper. Conduct the filtration in an oven set at 60 °C to avoid any crystallization of the sample. Leave the filtered sample in the oven for 10 min until it is free of air bubbles.

Dip at least three clean capillary tubes into the liquid sample so that columns of fat approximately 10 mm high are obtained in the tubes. Immediately chill the columns of fat by holding and rolling the ends of the tubes containing the sample pressed against a piece of ice, until the fat has solidified. Do not allow the open end of the tube to touch the ice. Wipe the tubes against a piece of tissue paper as quickly as possible. Place the tubes in a test tube which is held in a beaker of water that has been equilibrated at 10 °C ± 1 °C in a thermostated water bath. Transfer the beaker to the water bath and hold for 16 h at 10 °C ± 1 °C.

For the determination, follow the procedure as given in 8.3.1 to 8.3.3 Regulate the rise in temperature in the water jacket to 1 °C/min, slowing down to 0,5 °C/min as the slip point is reached. Note the temperature value indicated by the thermometer as soon as the fat rises in each of the tubes.

Note the arithmetic mean of the three readings obtained and take this as the result of one determination.

Annex B
(informative)

Results of interlaboratory tests on palm oil samples

Table B.1 — Comparison of methods

Samples		Slip point		
		MS 817:1989	ISO 6321	
		AOCS CC 3-25[1)]	Method A	Method B
Palm oil, RBD[2)]	1	36,8	38,2	36,5
	2	35,3	37,4	35,5
	3	35,2	37,7	35,5
	4	36,6	38,0	36,5
	5	35,6	37,5	35,5
Palm olein, RBD	1	22,3	24,4	25,5
	2	22,2	24,4	25,5
	3	22,5	24,3	25,5
	4	22,5	24,2	24,9
	5	22,3	24,2	24,9
Palm stearin, RBD	1	51,6	51,8	51,5
	2	52,8	51,8	52,8
	3	46,0	44,8	45,0
	4	52,3	52,8	53,4
	5	51,0	51,0	51,5
Crude palm oil	1	35,8	35,6	26,0
	2	35,3	36,6	26,0
	3	35,8	36,4	26,0
	4	35,0	35,8	26,0
	5	35,8	36,8	26,0
Crude palm kernel oil	1	27,8	27,7	27,6
	2	26,6	27,8	27,6
	3	26,7	26,7	27,0
	4	26,8	26,7	27,0
	5	27,0	27,5	27,4
Palm kernel oil, RBD	1	27,8	27,8	28,2
	2	27,8	27,6	27,6
	3	27,7	27,5	28,0
	4	27,8	27,2	28,0
	5	27,6	27,3	27,8
Palm kernel olein, RBD	1	26,2	25,8	26,0
	2	23,4	23,3	23,8
	3	23,5	23,4	23,8
	4	23,4	23,4	23,8
	5	24,6	24,4	24,5
Palm kernel stearin, RBD	1	32,2	32,2	33,0
	2	32,2	32,8	33,0
	3	39,3	38,5	39,4
	4	33,3	33,0	33,2
	5	32,3	33,6	33,2

1) Malaysian Standard MS 817:1989, *The determination of melting point in open capillary tubes (slip point) for palm oil products.* AOCS Official Method CC 3-25 — *Slip melting point AOCS standard open tube melting point* (updated 1992).

2) RBD: refined, bleached, deodorized.

Table B.2 — Statistical results of interlaboratory tests

	Palm oil	Palm olein	Palm stearin
No. of laboratories retained after eliminating outliers	10	11	11
Mean (°C)	37,4	20,5	52,1
Standard deviation of repeatability s_r (°C)	0,23	0,15	0,09
Coefficient of variation of repeatability	0,6	0,7	0,2
Repeatability limit, $2{,}8 \times s_r$ (°C)	0,64	0,42	0,25
Standard deviation of reproducibility s_R (°C)	0,78	0,98	0,54
Coefficient of variation of reproducibility	2,1	4,8	1,0
Reproducibility limit, $2{,}8 \times s_R$ (°C)	2,2	2,7	1,5

ICS 67.200.10

Descriptors: agricultural products, food products, animal fats, vegetable fats, animal oils, vegetable oils, tests, determination, melting points.

Price based on 3 pages