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MS 816 (2007) (English): PALM OLEIN -
SPECIFICATION (SECOND REVISION)



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MALAYSIAN STANDARD

MS 816:2007

PALM OLEIN - SPECIFICATION (SECOND REVISION)

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Committee representation

The Food and Food Products Industry Standards Committee (ISC U) under whose authority this Malaysian Standard was developed, comprises representatives from the following organisations:

Department of Agriculture

Department of Chemistry Malaysia

Department of Standards Malaysia

Federal Agricultural Marketing Authority

Federation of Malaysian Manufacturers

Malaysian Agricultural Research and Development Institute

Malaysian Association of Standards Users

Malaysian Institute of Food Technology

Malaysian Palm Oil Association

Malaysian Palm Oil Board

Ministry of Agriculture and Agro-Based Industry

Ministry of Health Malaysia

Ministry of International Trade and Industry

Ministry of Science, Technology and Innovation (National Biotechnology Division)

Universiti Kebangsaan Malaysia

Universiti Putra Malaysia

The Technical Committee on Fats and Oils which developed this Malaysian Standard was managed by the Malaysian Palm Oil Board in its capacity as an authorised Standards-Writing Organisation and consists of representatives from the following organisations:

Kumpulan Guthrie Berhad

Malayan Edible Oil Manufacturers' Association

Malaysian Oleochemical Manufacturers' Group

Malaysian Palm Oil Association

Malaysian Palm Oil Board (Secretariat)

Ministry of Health Malaysia

Palm Oil Refiners Association of Malaysia

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FOREWORD

This Malaysian Standard was developed by the Technical Committee on Fats and Oils under the authority of the Food and Food Products Industry Standards Committee. Development of this standard was carried out by the Malaysian Palm Oil Board (MPOB) which is the Standards-Writing Organisation (SWO) appointed by SIRIM Berhad to develop standards for palm oil products, oil-based food products, oleochemicals, palm kernel products and oil palm-based products.

This Malaysian Standard is the second revision of MS 816, *Specification for palm olein* which was published in 1983 and revised in 1991.

The major modifications in this revision are as follows:

- a) In clause 1.1.3, for solvent fractionation, the separation and removal of solvent has been clearly described.
- b) Separate definitions for "refined, bleached and deodorised palm olein" and "neutralised, bleached and deodorised palm olein".
- c) The colour specification for refined, bleached and deodorised/neutralised, bleached and deodorised palm olein in Table 2 is amended to 3R.

This revised Malaysian Standard cancels and replaces MS 816:1983, *Specification for palm olein*.

Compliance with a Malaysian Standard does not of itself confer immunity from legal obligations.

PALM OLEIN - SPECIFICATION (SECOND REVISION)

1. Scope

This Malaysian Standard specifies requirements for different products of palm olein i.e. the low-melting fraction obtained from a one-stage fractionation process of Malaysia palm oil through any of the following three processes:

- a) Dry fractionation through crystallisation of the oil by controlled cooling and subsequent filtration.
- b) Detergent fractionation through crystallisation of the oil by controlled cooling and separation of the fractions after addition of a surface active agent; after fractionation, the surface active agent is removed by washing.
- c) Solvent fractionation through controlled crystallisation of the oil in a solvent followed by separation of the fractions; after separation, the solvent is removed by distillation.

2. Normative references

The following normative references are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the normative reference (including amendments) applies.

Malaysian Food Regulations 1985.

MS 817, *Method of tests for palm oil and palm oil products*, related series

MS 1231, *Method of sampling for palm oil and palm oil products*

3. Definitions

For the purpose of this standard, the following definitions apply:

3.1 Crude palm olein

Crude palm olein is the low-melting (liquid) fraction obtained by a one-stage fractionation of crude palm oil.

3.2 Neutralised palm olein

Neutralised palm olein is the low-melting fraction (liquid) obtained by a one-stage or multi-fractionation either from neutralised palm oil or from crude palm oil and subsequently neutralised with alkali.

3.3 Neutralised, bleached palm olein

Neutralised bleached palm olein is the low-melting (liquid) fraction obtained by a one-stage or multi-stage fractionation either from crude palm oil and subsequently neutralised with alkali and bleached with bleaching earth or from neutralised palm oil and subsequently bleached with bleaching earth or activated carbon or both.

3.4 Refined, bleached and deodorised palm olein

Refined, bleached and deodorised palm olein is the low-melting (liquid) fraction obtained by one-stage or multi-stage fractionation of refined, bleached and deodorised palm oil; or from crude or semi-refined palm oil, subsequently refined by treatment with bleaching earth or activated carbon or both, deacidified and deodorised by steam.

3.5 Neutralised, bleached and deodorised palm olein

Neutralised, bleached and deodorised palm olein is the low-melting (liquid) fraction obtained by a one-stage or multi-stage fractionation of crude palm oil and subsequently refined by neutralisation with alkali, treatment with bleaching earth or activated carbon or both, and deodorised by steam; or the liquid fraction obtained from the fractionation of neutralised, bleached and deodorised palm oil.

4. Identity characteristics

The identity characteristics for palm olein are given in Table 1. The ranges of these identity characteristics are not mandatory and are considered as guideline levels.

5. Quality characteristics

5.1 General characteristics

5.1.1 Colour at 40 °C to 45 °C

The colour of crude or neutralised palm olein shall be bright, clear, and deep red. The colour of neutralised, bleached palm olein shall be bright, clear and reddish yellow while that for refined/neutralised, bleached and deodorised palm olein shall be bright, clear and light yellow.

5.1.2 Odour

All palm olein products shall be free from foreign and rancid odour.

5.2 Quality requirements

5.2.1 This standard shall incorporate the following palm olein products:

- a) crude palm olein;
- b) neutralised palm olein;

- c) neutralised, bleached palm olein;
- d) refined, bleached and deodorised palm olein; and
- e) neutralised, bleached and deodorised palm olein.

Table 1. Identity characteristics for palm olein

Identity characteristics	Observed range
Apparent density, g/ml at 40 °C	0.896 9 - 0.897 7
Refractive index, n_D 40 °C	1.458 9 - 1.459 2
Saponification value, mg KOH/g oil	194 - 202
Unsaponifiable matter, %	0.30 - 1.30
Fatty acid composition (wt % as methyl esters)	
C12:0	0.2 - 0.4
C14:0	0.9 - 1.2
C16:0	38.2 - 42.9
C16:1	0.1 - 0.3
C18:0	3.7 - 4.8
C18:1	39.8 - 43.9
C18:2	10.4 - 12.7
C18:3	0.1 - 0.6
C20:0	0.2 - 0.6
Iodine value (Wijs)	56.0 - 59.1
Slip melting point, °C	19.2 to 23.6
Total carotenoids (as β -carotene), mg/kg	500 to 1200
NOTE. The identity characteristics of processed palm oil differ in no significant ways from those of crude palm oil with the exception of caretenoids.	

5.2.2 The product, at the time of shipment as per current trade practice, i.e. at the point and time of delivery of the oil from sellers' tanks, whether ex-refinery, ex-bulking installation, or otherwise, as the case may be, shall conform to the requirements prescribed in Table 2.

6. Hygiene

The product shall be processed and handled under hygienic and sanitary conditions in licensed premises in accordance with the public health legislation currently in force in Malaysia.

7. Packaging and labelling

7.1 Packaging

The product shall be supplied in bulk or in rust-free steel drums, or as agreed upon between the purchaser and the supplier.

Table 2. Quality requirements for palm olein products

Characteristics	Products requirements			
	Crude	Neutralised	Neutralised, bleached	Refined, bleached and deodorised/ neutralised, bleached and deodorised
Free fatty acid (as palmitic), % max.	5.0	0.25	0.25	0.10
Moisture and impurities, % max.	0.25	0.10	0.10	0.10
Iodine value (Wijs), min.	56	56	56	56
Slip melting point, °C max.	24	24	24	24
Peroxide value, meq O ₂ /kg, max.	-	-	-	2.0
Colour, 133.35 mm (5¼ in) Lovibond, max.	-	-	20R	3R

7.2. Labelling

7.2.1 The product shall comply with the current Malaysian Food Regulations 1985 on labelling.

7.2.2 The package shall be marked legibly and indelibly with the following information:

- name of the product;
- weight of the product;
- producer's name and address or trademark;
- month and year of manufacture and lot identification or code; and
- country of origin.

8. Certification

8.1 The product, may by arrangement with a recognised certification body, be marked with the certification mark of that body, provided the product conforms to the requirements of this Malaysian Standard.

8.2 The product may be certified *Halal* by a recognised authority.

9. Sampling and testing

Representative samples of the product shall be drawn according to the method prescribed in MS 1231 and the sample shall be prepared according to MS 817: Part 1. Tests shall be carried out according to the methods prescribed in the related series of MS 817.

10. Compliance

10.1 If, on testing, each of the samples is found to conform to the requirements specified in this standard, the lot, batch or consignment from which the samples have been drawn shall be deemed to comply with this standard.

10.2 In this context, the term 'sample' shall be taken to include also 'composite sample or samples' where appropriate as agreed upon mutually between seller and buyer.

11. Legal requirements

The product, in all other aspects, shall comply with the requirements of the legislation currently in force in Malaysia.

Acknowledgements

Members for Technical Committee on Fats and Oils

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