THE FOOD ACT, No. 26 OF 1980

REGULATIONS made by the Minister of Health, Nutrition and Indigenous Medicine under section 32 of the Food Act, No. 26 of 1980 in consultation with the Food Advisory Committee

…….

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Minister of Health, Nutrition and

Indigenous medicine

Colombo,

Date……

Regulations

1. These regulations may be cited as the Food (Fats and Oils) Regulations 2019 and shall come into operation on……..

2. General conditions

2.1. All edible fats and oils shall be sold only in the packaged form

2.2 The edible fats and oils shall be free from adulterants, visible sediments, suspended and other foreign matters, separated water, added colouring substances, and flavouring substances.

2.3. The odour and taste of each product shall be characteristic of the designated product. It shall be free from rancid odour and taste.

2.4 The product shall be free from admixture of other fats and oils.

2.5 The level of aflatoxins in fats and oils shall not exceed 5.0 µg/kg for aflatoxin B_1 and 10.0µg/kg for total aflatoxins.

2.6 All types of oils shall not contain more than

a) 0.2 mg/kg Lead (as Pb)

b) 0.2 mg/kg Cadmium (as Cd)

c) 0.1 mg/kg Arsenic (as As).

2.7. Edible oil and fats may contain antioxidants in accordance with the Food (Antioxidants) Regulations 2009 published in Gazette Extraordinary No. 1617/16 of September 01, 2009 as amended 2013.

3. COCONUT OIL (EDIBLE COCONUT OIL)

3.1 "Coconut oil" shall be the product obtained from the sound and mature coconut kernel (*Cocos nucifera* Linn), by a process of expelling with or without heat followed by filtration or solvent extraction.

3.2 "Virgin coconut oil" shall be the product obtained from fresh , mature kernel without testa of the coconut by mechanical or natural means, with or without the use of heat not exceeding 60^0C, without undergoing chemical refining, bleaching or deodorizing and which does not lead to the alteration of the nature of the oil. Virgin coconut oil is suitable for consumption without further processing.

3.3 "White coconut oil" shall be edible grade coconut oil expelled from the mature and dried kernel (copra) which may have been purified by physical processes such as washing , settling, filtration, refrigeration and centrifugation only.

3.4 "Refined and bleached (RB) coconut oil" shall be the coconut oil which has been refined by neutralization with alkali and bleached with bleaching earth or activated carbon or both, no other chemical agents being used.

3.5 "Refined, bleached and deodourized(RBD) coconut oil" shall be the coconut oil which has been refined by neutralization with alkali / physical process and bleached with bleaching earth or activated carbon or both and deodourized with steam, no other chemical agents being used.

3.6 Edible pairing oil shall be the coconut oil extracted hygienically from the outer layer of the endosperm (testa) in a manner that preserves its natural integrity.

3.7 General requirements

(1). The coconut oil shall have the typical physical characteristics coconut oil.

(2). The coconut oil shall be clear when heated to a temperature of 30^0C.

(3). The physical and chemical requirements for coconut oil shall be in accordance with schedule I.

SCHEDULE I

Characteristics	Coconut oil	Virgin coconut oil	White coconut oil	RB coconut oil	RBD coconut oil	Paring oil
Relative density, at 30 ^{0}C/ 30 ^{0}C	0.915-0.920	0.915-0.920	0.915-0.920	0.915-0.920	0.915-0.920	0.915-0.920
Refractive index, at 40 ^{0}C	1.4480-1.4492	1.4480-1.4492	1.4480-1.4492	1.4480-1.4492	1.4480-1.4492	1.4480-1.450
Iodine value	7 -11	4 - 6	7 -11	7 -11	7 -11	9 -18
Saponification value	248 -265	248 -265	248 -265	248 -265	248 -265	248 -265
Unsaponifiable matter, per cent by mass, max.	0.8	0.2	0.4	0.8	0.5	0.8
Colour 25mm cell on the Lovibondcolour scale expressed in Y+5R, not deeper than	5	1	4	2	2	5
Moisture and other volatile matter at 105 ^{0}C, per cent by mass, max.	0.4	0.2	0.4	0.1	0.1	0.4
Insoluble impurities per cent by mass, max.	0.05	0.05	0.05	0.05	0.05	0.05
Free fatty acids calculated as lauric acid per cent by mass, max.	0.8	0.2	0.8	0.1	0.1	0.8
Mineral acidity	Nil	Nil	Nil	Nil	Nil	Nil
Peroxide value meq/kg, max.	3.0	3.0	3.0	3.0	3.0	3.0

3.8 Fatty acid composition of coconut oil shall be in accordance with the schedule II ;

SCHEDULE II

Fatty acid composition (as methyl esters), percentage by mass	Range
C6:0	ND to 0.7
C8:0	4.6 to 10
C10:0	5 to 8
C12:0	45.1 to 53.2
C14:0	16.8 to 21.0
C16:0	7.5 to 10.2
C18:0	2.0 to 4.0
C18:1	5.0 to 10.0
C18:2	1.0 to 2.5
C18:3	ND to 0.2
C20:0	ND to 0.2
C20:1	ND to 0.2

4. GINGELLY SEED OIL (SESAMESEED OIL)

"Sesame seed oil" shall be the product obtained by expression or solvent extraction from roasted or unroasted seeds of *Sesamum indicum* L.

4.1 General requirement

(1). The product when maintained at a temperature of 25 ^{0}C to 28 ^{0}C for a period of 24 hours shall be clear and free from sediments or other insoluble matter.

(2). The physical and chemical requirements for coconut oil shall be in accordance with schedule III.

SCHEDULE III

Characteristics	Requirement
Relative density at 30 ^{0}C/30 ^{0}C	0.915 – 0.919
Refractive index at 40 ^{0}C	1.465 – 1.469
Iodine value*	103 – 115
Saponification value, mg KOH/g oil	188 – 193
Colour**, inch a ¼-in cell on the Lovibond tintometer scale, expressed as Y+5R ,max.	20
Free fatty acids calculated as Oleic acid, per cent by mass, max.	3.0
Matter volatile at 105 ^{0}C, per cent by mass, max.	0.2
Unsaponifiable matter, per cent by mass, max.	1.5
Insoluble impurities, per cent by mass, max.	0.05

*For roasted sesameseed oil iodine value shall be 103-120

**Not applicable for product prepared from roasted sesame seeds.

(3) Fatty acid composition of sesame seed oil shall be in accordance with schedule IV

SCHEDULE IV

Fatty acid composition (as methyl esters), percentage by mass	Range
C14:0	ND to 0.1
C16:0	7.9 to 12.0
C16:1	ND to 0.2
C18:0	4.5 to 6.7
C18:1	34.4 to 45.5
C18:2	36.9 to 47.9
C18:3	0.2 to 1.0
C20:0	0.3 to 0.7
C20:1	ND to 0.3
C22:0	ND to 1.1
C24:0	ND to 0.3

5. CORN (MAIZE) OIL

Maize oil (Corn oil) is derived from maize germ (the embryos of *Zea mays* L.)

5.1 Refined, Bleached and Deodourized (RBD) Corn Oil shall be made from crude corn oil which has been refined by neutralization with alkali, bleached with bleaching earth or activated carbon or both and deodourized with steam or any other acceptable commercial process.

5.2 The physical and chemical requirements for corn oil shall be in accordance with schedule V.

SCHEDULE V

Characteristics	Requirement
Relative density 30 ^{0}C/30 ^{0}C	0.913 – 0.920
Refractive index (nD 40 ^{0}C)	1.465 – 1.468
Iodine value	103 – 128
Saponification value, mg KOH/g oil	187 – 195
Colour, in a 133 mm (5 ¼") cell on the Lovibondtintometer scale, combination of yellow and red units, max.	30 Y 2.5 R
Free fatty acids calculated as Oleic acid per cent by mass, max.	0.1
Peroxide value, mEq per kg, max.	10
Matter volatile at 103± 2 ^{0}C and insoluble impurities per cent by mass, max.	0.1
Unsaponifiable matter, per cent by mass, max.	1.5

5.3 Fatty acid composition of corn oil shall be in accordance with schedule VI ;

SCHEDULE VI

Fatty acid composition (as methyl esters), percentage by mass	Range
C12:0	ND to 0.3
C14:0	ND to 0.3
C16:0	8.6 to 16.5
C16:1	ND to 0.5
C18:0	ND to 3.3
C18:1	20.0 to 42.2
C18:2	34.0 to 65.6
C18:3	ND to 2.0
C20:0	0.3 to 1.0
C20:1	0.2 to 0.6
C20:2	ND to 0.1

6. OLIVE OIL

"Olive Oil'' shall be the product obtained solely from the fruit of the olive tree (*Olea europaea* L.),

6.1 "Refined olive oil'' shall be the product obtained from natural olive fruits of the olive tree by refining methods including deodourization which do not lead to alterations in the initial glyceridic structure

6.2 "Virgin olive Oil'' shall be the product obtained solely from the fruit of the olive tree (*Oleaeuropaea* L.) by mechanical or other physical means under conditions, including thermal conditions, that do not lead to alterations in the oil, and which have not undergone any treatment other than washing, crushing, malaxing, decantation, pressing, centrifugation and filtration and which has a free fatty acid expressed as oleic acid not more than 2.0 percent by mass.

6.3 "Extra virgin olive Oil'' shall be the product obtained solely from the fruit of the olive tree (*Oleaeuropaea* L.) by mechanical or other physical means under conditions, including thermal conditions, that do not lead to alterations in the oil, and which have not undergone any treatment other than washing, crushing, malaxing, decantation, pressing,

centrifugation and filtration and which has a free fatty acid expressed as oleic acid not more than 0.8 percent by mass.

6.4 The physical and chemical requirements for olive oil shall be in accordance with schedule VII

SCHEDULE VII

Characteristic	Requirements			
	Extra virgin olive oil	Virgin olive oil	Refined olive oil	Olive oil
Relative density 20 ^{0}C/20 ^{0}C	0.910 – 0.916	0.910 – 0.916	0.910 – 0.916	0.910 – 0.916
Refractive index (nD 20 ^{0}C)	1.4677 – 1.4705	1.4677 – 1.4705	1.4677 – 1.4705	1.4677 – 1.4705
Iodine value	75 - 94	75 - 94	75 - 94	75 - 94
Saponification value	184 - 196	184 - 196	184 - 196	184 - 196
Moisture &volatile matter at 103± 2^{0}C per cent by mass, max.	0.2	0.2	0.1	0.1
Insoluble impurities, per cent by mass, max.	0.1	0.1	0.05	0.05
Free fatty acids calculated as Oleic acid, per cent by mass, max.	0.8	2.0	0.3	1.0
Peroxide value, meq per kg, max.	10	10	10	10
Unsaponifiable matter, per cent by mass, max.	1.5	1.5	1.5	1.5

6.5 Fatty acid composition of olive oil shall be in accordance with the schedule VIII;

SCHEDULE VIII

Fatty acid composition (as methyl esters), percentage by mass	Range
C14:0	ND to 0.5
C16:0	7.5 to 20.0
C16:1	0.3 to 3.5
C18:0	0.5 to 5.0
C18:1	55.0 to 83.0
C18:2	3.5 to 21.0
C18:3	ND to 1.5
C20:0	ND to 0.6
C20:1	ND to 0.4
C22:0	ND to 0.2
C24:0	ND to 0.2

7. GROUNDNUT (PEANUT) OIL

"Refined, Bleached and Deodourized (RBD) groundnut Oil'' shall be the product of crude groundnut oil derived from the seeds of ground nut (*Arachis hypogaea* L.) which has been refined by neutralization with alkali, bleached with bleaching earth or activated carbon or both and deodourized with steam or any other acceptable commercial process.

7.1 The physical and chemical requirements for olive oil shall be in accordance with schedule IX

SCHEDULE IX

Characteristics	Requirement
Relative density 25 ^{0}C/25 ^{0}C	0.909 – 0.916
Refractive index (nD 40 ^{0}C)	1.460 – 1.465
Iodine value	86 – 107
Saponification value	187 – 196
Colour, in a 133 mm (5 ¼") cell, Lovibond tintometer scale, combination of yellow and red units, max.	20 Y 2 R
Matter volatile at 103± 2^{0}C and insoluble impurities per cent by mass, max.	0.1
Free fatty acids as Oleic acid, per cent by mass, max.	0.5
Peroxide value, mEq per kg, max.	10
Unsaponifiable matter, percent by mass, max.	0.8

7.2 Fatty acid composition of groundnut oil shall be in accordance with schedule X

SCHEDULE X

Fatty acid composition (as methyl esters), percentage by mass	Range
C12:0	ND to 0.1
C14:0	ND to 0.1
C16:0	8.0 to 14.0
C16:1	ND to 0.2
C18:0	1.0 to 4.5
C18:1	35.0 to 69.0
C18:2	12.0 to 43.0
C18:3	ND to 0.3
C20:0	1.0 to 2.0
C20:1	0.7 to 1.7
C20:2	ND
C22:0	1.5 to 4.5
C22:1	ND to 0.3
C22:2	ND
C24:0	0.5 to 2.5
C24:1	ND to 0.3

8. SOYA BEAN OIL

Soya bean oil (Soybean oil) is derived from Soya beans seeds of (*Glycine max* (L.) Merr.)

8.1 "Refined, Bleached and Deodourized (RBD) Soya bean Oil" shall be the product of crude Soya bean oil which has been refined by neutralization with alkali, bleached with bleaching earth or activated carbon or both and deodourized with steam or any other acceptable commercial process.

8.2 The physical and chemical requirements for Soya Bean oil shall be in accordance with schedule XI

SCHEDULE XI

Characteristics	Requirement
Relative density 25 ^{0}C/25 ^{0}C	0.916 – 0.922
Refractive index (nD 40 ^{0}C)	1.466 – 1.470
Iodine value	125 – 140
Saponification value	189 – 195
Colour, in a 133 mm (5 ¼") cell, Lovibondtintometer scale, combination of yellow and red units, max.	25 Y 2.5 R
Matter volatile at 103± 2^{0}C and insoluble impurities per cent by mass, max.	0.1
Free fatty acids calculated as Oleic acid per cent by mass, max.	0.25
Peroxide value, mEq per kg, max.	10
Unsaponifiable matter, per cent by mass, max.	1.0

8.2 Fatty acid composition of soya bean oil shall be in accordance with schedule XII

SCHEDULE XII

Fatty acid composition (as methyl esters), percentage by mass	Range
C12:0	ND to 0.1
C14:0	ND to 0.2
C16:0	8.0 to 13.5
C16:1	ND to 0.2
C18:0	2 to 5.4
C18:1	17.0 to 30.0
C18:2	48.0 to 59.0
C18:3	4.5 to 11.0
C20:0	0.1 to 0.6
C20:1	ND to 0.5
C20:2	ND to 0.1

9. PALM KERNEL OIL (EDIBLE)

"Palm kernel oil'' shall be the oil expressed from the kernel of clean and sound fruits of the oilpalm (*Elaeisguineensis*Jacq.)

9.1 "Refined, bleached and deodourized (RBD) palm kernel oil'' shall be the crude palm kernel oil which has been refined by pretreatment with acids or alkali, bleached with bleaching earth or activated carbon or both and de-acidified and deodorized with steam or any other acceptable commercial process.

9.2 "Neutralized, bleached and deodourized (NBD) palm kernel oil'' shall be the product obtained from crude palm kernel oil and subsequently refined by neutralization with alkali, treated with bleaching earth or activated carbon or both, and deodourized by steam. The colour at 45 ^{0}C to 50^{0}C of refined or neutralized, bleached and deodourized palm kernel oil shall be clear and yellow.

9.3 The physical and chemical requirements for Palm kernel oil shall be in accordance with schedule XIII

SCHEDULE XIII

Characteristics	Requirements
Apparent density, g/mL, at 40 ^{0}C	0.90 to 0.905
Refractive index, n_D 40^{0}C	1.4500-1.4518
Iodine value	16-19
Saponification value, mg KOH/g oil	243-249
Unsaponifiable matter, per cent by mass, max.	1.0
Slip melting point, ^{0}C	25.9–28.0
Colour, 133.4mm cell on the Lovibond, max.	1.5 R
Moisture and Insoluble impurities, percent by mass, max.	0.1
Free fatty acids calculated as Lauric acid per cent by mass, max.	0.1
Peroxide value mEq per kg, max.	10

9.4 Fatty acid composition of Palm Kernel oil shall be in accordance with schedule XIV

SCHEDULE XIV

Fatty acid composition (as methyl esters), percentage by mass	Range
C6:0	0.2 to 0.4
C8:0	3.2 to 4.7
C10:0	2.9 to 3.5
C12:0	45.5 to 55.0
C14:0	15.4 to 17.2
C16:0	7.6 to 9.2
C16:1	ND to 0.2
C18:0	1.5 to 2.8
C18:1	11.5 to 16.9
C18:2	1.0 to 2.9

10. PALM OIL (EDIBLE)

"Palm oil'' shall be the oil expressed from the fleshy mesocarp of clean and sound fruits of the oilpalm (*Elaeis quineensis* Jacq.),

10.1 "Refined, bleached and deodourized palm oil (RBD)'' shall be the oil obtained from crude or semi refined palm oil which has been bleached with bleaching earth or activated carbon or both, deodourized by steam and de-acidified by physical means.

10.2 The physical and chemical requirements for Palm oil shall be in accordance with schedule XV

SCHEDULE XV

Characteristics	Requirement
Apparent density, g/mL, at 50 ^{0}C	0.8889 to 0.8896
Refractive index, n_D 50 ^{0}C	1.4521to 1.4541
Iodine value	50-54
Saponification value, mg KOH/g oil	194-205
Unsaponifiable matter, per cent by mass, max.	1.2
Slip melting point, ^{0}C	33 to 39
Moisture at 105 ± 2 ^{0}C and insoluble impurities percent by mass, max.	0.05 to 0.2
Free fatty acids calculated as Palmatic acid per cent by mass, max.	0.1
Peroxide value as meq of active oxygen/kg, max.	10

10.3 Fatty acid composition of Palm oil shall be in accordance with schedule XVI

SCHEDULE XVI

Fatty acid composition (as methyl esters), percentage by mass	Range
C12:0	ND to 0.5
C14:0	0.9 to 1.5
C16:0	39.2 to 45.8
C16:1	ND to 0.4
C18:0	3.7 to 5.1
C18:1	37.4 to 44.1
C18:2	8.7 to 12.5

11. PALM STEARIN OIL

"Palm stearin'' means the high- melting fraction obtained from fractionation process of palm oil obtained from the fleshy mesocarp of the fruit of the oilpalm *Elaeisguineensis*,

"Refined, bleached and dedourized (RBD) palm stearin'' means the high-melting fraction obtained by one-stage or multi-stage fractionation from refined, bleached and deodourized palm oil.

11.1 The physical and chemical requirements for Palm stearin oil shall be in accordance with schedule XVII

SCHEDULE XVII

Characteristics	RBD/NBD	Requirement
Apparent density, g/mL at 60^0C	-	0.8813-0.8844
Refractive index,nD 60 ^{0}C	-	1.4482-1.4501
Iodine value	-	48
Saponification value, mg KOH/g oil	-	193-205
Unsaponifiable matter, per cent by mass, max.	-	0.9
Slip melting point, ^{0}C, (min.)	-	44
Colour 133.4mm cell on the Lovibond, max.	3 R	-
Moisture and Insoluble impurities percent by mass, max.	0.15	-
Free fatty acids calculated as Palmatic acid per cent by mass, max.	0.2	-
Peroxide value meq/kg, max	5	10

NS – Not Specified
R - Red

11.2 Fatty acid composition of palm stearin oil shall conform to the schedule XVIII

SCHEDULE XVIII

Fatty acid composition (as methyl esters), percentage by mass	Range
C12:0	0.1 to 0.3
C14:0	1.1 to 1.7
C16:0	49.8 to 80.0
C16:1	<0.05 to 0.1
C18:0	3.9 to 5.6
C18:1	11.0 to 34.4
C18:2	2.0 to 8.9
C18:3	0.0 to 0.5
C20:0	0.3 to 0.6

12. PALM OLEIN OIL

"Palm Olein'' shall be the low- melting (liquid) fraction obtained from a one-stage fractionation process of palm oil obtained from the fleshy mesocarp of the fruit of *Elaeis guineensis*,

"Refined, bleached and dedourized(RBD) palm olein'' shall be the low melting (liquid) fraction obtained by one-stage or multi-stage fractionation from refined, bleached and deodourized palm oil or from crude or semi refined palm oil, subsequently refined by treatment with bleaching earth or activated carbon or both, de-acidified and deodourized by steam.

12.1 The physical and chemical requirements for Palm Olein oil shall be in accordance with schedule XIX

SCHEDULE XIX

Characteristics	RBD/NBD	Requirement
Apparent density, g/mL, at 40 ^{0}C		0.8969 - 0.8977
Refractive index, n_D 40 ^{0}C	-	1.4580 - 1.4600
Iodine value	-	55-59
Saponification value, mg KOH/g oil	-	194-202
Unsaponifiable matter, per cent by mass, max.	-	1.3
Slip melting point, ^{0}C	-	19-24
Colour 133.4 mm cell on the Lovibond, max.	4 R	-
Moisture at 105± 2 ^{0}C and Insoluble impurities percent by mass, max.	0.10	-
Free fatty acids calculated as Palmatic acid per cent by mass, max.	0.1	-
Peroxide value, as meq/kg max.	5	10

12.2 Fatty acid composition of palm olein oil shall conform to Schedule XX

SCHEDULE XX

Fatty acid composition (as methyl esters), percentage by mass	Range
C12:0	0.2 to 0.4
C14:0	0.9 to 1.2
C16:0	38.2 to 42.9
C16:1	0.1 to 0.3
C18:0	3.7 to 4.8
C18:1	39.8 to 43.9
C18:2	10.4 to 12.7
C18:3	0.1 to 0.6
C20:0	0.2 to 0.6

13. PALM KERNEL STEARIN OIL

"Palm kernel stearin oil'' shall be the higher- melting fraction obtained from fractionation process of palm kernel oil derived from the kernels of the fruit of the oil palm *Elaeis guineensis*by fractionation through crystallization of the oil by controlled cooling and subsequent filtration.

13.1 The physical and chemical requirements for Palm kernel stearin oil shall be in accordance with schedule XXI

SCHEDULE XXI

Characteristics	Requirement
Apparent density, g/mL, at 40 ^{0}C	0.904 - 0.906
Refractive index, nD 40 ^{0}C	1.4494 -1.4501
Iodine value	6 - 8
Saponification value, mg KOH/g oil	245 - 255
Unsaponifiable matter, per cent by mass, max.	1.0
Slip melting point, ^{0}C	31.3-33.1
Colour 133.4mm cell on the Lovibond, max.	1.5R
Moisture at 105 ± 2 ^{0}C and Insoluble impurities percent by mass, max.	0.1
Free fatty acids calculated as Lauric acid per cent by mass, max.	0.1

13.2 Fatty acid composition of palm kernel stearin oil shall conform to the XXII

SCHEDULE XXII

Fatty acid composition (as methyl esters), percentage by mass	Range
C6:0	-
C8:0	1.5 to 2.6
C10:0	2.5 to 4.5
C12:0	54.8 to 58.2
C14:0	21.1 to 24.1
C16:0	7.2 to 10.0
C18:0	1.3 to 2.4
C18:1	4.6 to 7.2
C18:2	0.6 to 1.3

14. PALM KERNEL OLEIN OIL

"Palm kernel olein oil'' shall be the liquid fraction obtained from fractionation process of palm kernel oil obtained from the kernel of the fruits of the oilpalm (*Elaeis guineensis).*

14.1 The physical and chemical requirements for Palm kernel olein oil shall be in accordance with schedule XXIII

SCHEDULE XXIII

Characteristics	Requirement
Apparent density, g/mL, at 40 ^{0}C	0.904 - 0.906
Refractive index, nD 40 ^{0}C	1.4514 -1.4522
Iodine value	21- 26
Saponification value, mg KOH/g oil	231- 244
Unsaponifiable matter, per cent by mass, max.	1.0
Slip melting point, ^{0}C	21.8 - 26.0
Colour 133.4 mm cell on the Lovibond, max.	1.5R
Moisture at 105 ± 2 ^{0}C and Insoluble impurities percent by mass, max.	0.1
Free fatty acids calculated as Lauric acid per cent by mass, max.	0.1
Peroxide value	10

R - Red

14.2 Fatty acid composition of palm kernel olein oil shall conform to schedule XXIV

SCHEDULE XXIV

Fatty acid composition (as methyl esters), percentage by mass	Range
C6:0	0.2 to 0.4
C8:0	3.6 to 5.0
C10:0	3.2 to 4.5
C12:0	42.0 to 46.5
C14:0	12.3 to 15.5
C16:0	7.0 to 9.0
C16:1	-
C18:0	1.7 to 2.5
C18:1	16.0 to 21.3
C18:2	2.6 to 3.8

15. **PALM SUPER OLEIN OIL**

"Palm super olein'' shall be the liquid fraction of iodine value of 60 or higher obtained from the obtained from the fractionation of palm oil from the fleshy mesocarp of the fruit of the oil palm *Elaeis guineensis*, through single or two-stage fractionation.

15.1 The physical and chemical requirements for Palm super olein oil shall conform to schedule XXV

SCHEDULE XXV

Characteristics	Requirement
Apparent density, g/mL, at 40 ^{0}C	0.9042 - 0.9054
Refractive index, nD at 40 ^{0}C or	1.4634 - 1.4641
Iodine value (minimum)	60
Saponification value, mg KOH/g oil	181-191
Unsaponifiable matter, per cent by mass, max.	0.5
Slip melting point, ^{0}C	14 - 19
Colour 133.4 mm cell on the Lovibond, max.	4 R
Moisture at 105 $\pm$ 2 ^{0}C and Insoluble impurities percent by mass, max.	0.1
Free fatty acids calculated as Palmitic acid, per cent by mass, max.	0.1
Peroxide value, as meq of active oxygen/kg, max.	10

15.2 Fatty acid composition of palm super olein oil shall conform to schedule XXVI

SCHEDULE XXVI

Fatty acid composition (as methyl esters), percentage by mass	Range
C12:0	02 to 0.4
C14:0	0.9 to 1.1
C16:0	30.1 to 37.1
C16:1	0.2 to 0.4
C18:0	3.2 to4.3
C18:1	43.2 to 49.2
C18:2	10.7 to 15.0
C18:3	0.2 to 0.6
C20:0	0.0 to 0.4

16. SUNFLOWER OIL

"Sun flower oil" derived from the seeds of sun flower (*Helianthus Annuus L*)

"High Oleic acid sunflower oil'' shall be sunflower oil produced from high oleic acid oil bearing seeds of varieties derived from sunflower seeds.

16.1 The physical and chemical requirements for Sun flower oil and High oleic acid sunflower oil shall be in accordance with schedule XXVII

SCHEDULE XXVII

Characteristics	Requirements	
	Sunflower oil	High oleic acid sunflower oil
Relative density, $25^0C/25^0C$	0.918 – 0.923	0.909 - 0.915
Refractive index (nD)	1.461 – 1.468 at 40^0 C	1.467 - 1.471 at 25^0C
Iodine value	118 - 141	78 - 90
Saponification value	188 - 194	182 - 194
Colour, in a 133 mm (5 ¼") cell, Lovibondtintometer scale, combination of yellow and red units, max.	25Y 2.5R	25Y 2.5R
Moisture and other volatile matter at 103± 2^0C and insoluble impurities per cent by mass, max.	0.1	0.1
Free fatty acids calculated as Oleic acid per cent by mass, max.	0.25	0.25
Peroxide value, meq per kg, max.	10	10
Unsaponifiable matter, per cent by mass, max.	1.5	1.5

16.2 Fatty acid composition of sunflower oil High oleic acid sunflower oil shall be in accordance with schedule **XXVIII**

SCHEDULE XXVIII

Fatty acid composition (as methyl esters), percentage by mass	Range
C12:0	ND to 0.1
C14:0	ND to 0.2
C16:0	5.0 to 7.6
C16:1	ND to 0.3
C18:0	2.7 to 6.5
C18:1	14.0 to 39.4
C18:2	48.3 to 74.0
C18:3	ND to 0.3
C20:0	0.1 to 0.5
C20:1	ND to 0.3
C20:2	ND

17. RICE BRAN OIL

"Rice bran oil" derived from the bran of rice (*Oriza Sativa L)* by the process of expression and/or extraction.

"Refined, Bleached and Deodorized (RBD) rice bran Oil" shall be crude rice bran oil which has been refined by neutralization with alkali, bleached with bleaching earth or activated carbon or both and deodorized with steam or any other acceptable commercial process.

17.1 The physical and chemical requirements for Rice bran oil shall be in accordance with schedule XXIX

SCHEDULE XXIX

Characteristics	Requirement
Relative density $25^0C/25^0C$?	0.910 – 0.929
Refractive index (nD 40^0C)	1.460 – 1.473
Iodine value	90 - 115
Saponification value	180 - 199
Matter volatile at 103± 2^0C and insoluble impurities per cent by mass, max.	0.1
Free fatty acids calculated as Oleic acid per cent by mass, max.	0.5
Peroxide value, meq per kg, max.	10
Unsaponifiable matter, per cent by mass, max.	3.5

17.2 Fatty acid composition of rice bran oil shall conform to the schedule XXX

SCHEDULE XXX

Fatty acid composition (as methyl esters), percentage by mass	Range
C12:0	ND to 0.2
C14:0	ND to 1.0
C16:0	14.0 to 23.0
C16:1	ND to 0.5
C18:0	0.9 to 4.0
C18:1	38.0 to 48.0
C18:2	21.0 to 42.0
C18:3	0.1 to 2.9
C20:0	ND to 0.9
C20:1	ND to 0.8
C20:2	ND

18.0 FAT SPREADS AND BLENDED FAT SPREADS

18.1 Fat spreads and Blended fat spreads are foods having a texture that are plastic or fluid spreadable emulsions, principally of edible fats and oils of plant origin and water.

18.2 Fats spread is where the fat content shall be less than 80 percent m/m and milk fat content shall be less than 3 percent m/m of the total fat content.

18.3 Blended fat spread is where the fat content shall be less than 80 percent m/m and milk fat content shall be more than 3 percent by mass of the total fat content.

18.4 Fat spreads and blended fat spread may contain vitamin A, vitamin D, vitamin E, salt, sugars (any carbohydrate sweetening matter), and suitable edible protein.

18.5 Fat spreads and blended fat spread shall not contain more than

(a) 4.0 percent m/m Salt, as NaCl,

(b) 0.25 percent m/m acidity, as oleic acid

(c) 0.1 mg/kg heavy metals as Arsenic (As), Cadmium (Cd) and Lead (Pb).

18.6 The microbiological requirements for fat spreads shall be in accordance with schedule XXXI

SCHEDULE XXXI

Microorganism	Limit (cfu)
Aerobic plate count	1×10^4
Coliforms	1×10^2
Yeast	1×10^3
Moulds	1×10^2
Lipolytic organisms	1×10^3

19. BAKERY FATS

"Edible vegetable fat or oil used as a shortening or leavening agent in the manufacture of bakery products for promoting the development of the desired cellular structure in the bakery product with an accompanying increased in its tenderness and volume."

19.1 The physical and chemical requirements for Bakery fats shall be in accordance with schedule XXXII

SCHEDULE XXXII

Characteristics	Requirements
Moisture, per cent by mass, (max.)	0.25
Melting point, (slip melting point) ^{0}C	31- 41
Unsaponifiable matter, percent by mass, (max.)	2.0
Free fatty acids, per cent by mass as oleic acid, (max.)	0.25

19.2 0.1 mg/kg heavy metals as Arsenic (As), Cadmium (Cd) and Lead (Pb).

20. DAIRY FAT SPREADS

"These are milk products where milk fat content is not less than 10 per cent and not more than 80 per cent by mass and in the form of a spreadable emulsion principally of the type of water-in-milk fat that remains in solid phase at a temperature of 20 ^{0}C."

20.1 The physical and chemical requirements for Dairy fat spreads shall be in accordance with schedule XXXIII

SCHEDULE XXXIII

Characteristics	Requirements
Salt content, as NaCl, per cent by mass, a) Salted dairy fat spreads b) Unsalted dairy fat spreads, (max.)	 0.5 to 3.0 0.1
Free fatty acids, as oleic acid, per cent by mass, (max.)	0.3

20.2 The microbiological requirements for dairy fat spreads shall be in accordance with schedule XXXIV

SCHEDULE XXXIV

Test Organism	Limits per gram
E. coli	-
Coliforms	1×10^{2}
Yeast	1×10^{3}
Moulds	1×10^{2}
Lipolytic organisms	1×10^{3}

20.3 0.1 mg/kg heavy metals as Arsenic (As), Cadmium (Cd) and Lead (Pb).

21 BUTTER

"Butter means the product obtain exclusively from cow milk, buffalo milk or combination thereof, or from cream or curd, with or without the addition of salt (Sodium Chloride) and Carotene and/or Annatto as colouring matter"

21.1 The physical and chemical requirements for Butter shall be in accordance with schedule XXXV

SCHEDULE XXXV

Characteristics	Requirement
Water, per cent, (max.)	16.0
Milk fat, per cent, (min.)	80.0
Curd and salt, per cent, (max.)	4.0
Refractive index at 40 ^{0}C	1.4524 – 1.4561
Reichert -Meissel value	23 - 32
Polenske value	1.5 – 3.5
Foreign substances	Absent

22 GHEE (BUTTER OIL)

"Ghee (Butter oil) is a pure clarified milk fat exclusively derived from the milk of the cow or buffalo or any mixture thereof without any foreign fat or oil and not containing any foreign substances."

22.1 The physical and chemical requirements for Ghee shall be in accordance with schedule XXXVI

SCHEDULE XXXVI

Characteristics	Requirements
Moisture, per cent by mass, (max.)	0.5
Refractive index at 40 ^{0}C	1.4524 – 1.4561
Saponification value	218 - 234
Reichert -Meissel value,	23 - 32
Polenske value (min)	1.5
Free fatty acids, calculated as oleic acid, per cent by mass, (max.)	2.5

23 LARD

Lard shall be clear rendered fat obtained from swine.

23.1 The physical and chemical requirements for Lard shall be in accordance with schedule XXXVII

SCHEDULE XXXVII

Characteristics	**Requirements**
Moisture, per cent by mass, (max.)	1.0
Substances resulting from rendering process other than fatty acids and fat, per cent by mass, (max.)	1.0
Any other foreign substances	Absent
Refractive index at 40 ^{0}C	1.448-1.460
Saponification value	192-203

23 Tallow (DRIPPING)

"Dripping shall be the clear unbleached and unadulterated fat untreated by any chemical process, produced from or by rendering or processing of the fat or bones of Bovine animals and/or sheep."

23.1 The physical and chemical requirements for Dripping shall be in accordance with schedule XXXVIII

SCHEDULE XXXVIII

Characteristics	Requirements
Saponifiable matter, per cent (min.)	190-202
Free fatty acids, as oleic acid per cent, (max.)	1.5
Refractive index at 40 ^{0}C	1.448-1.460