

ICS 67.060

DMS 233:2018
First edition

DRAFT MALAWI STANDARD

Cake – Specification

NOTE: This is a draft proposal and it shall neither be used nor regarded as a Malawi Standard

Cake – Specification

Obtainable from the
Malawi Bureau of Standards
Ali Hassan Mwinyi Road
P O Box 946
BLANTYRE

Tel: +265 870 488
Fax: +265 870 756
E-mail: mbs@mbsmw.org
Website: www.mbsmw.org

Price based on 9 pages

© Copyright reserved

TABLE OF CONTENTS

Contents	Page
Foreword.....	ii
Technical committee.....	ii
Notice.....	ii
Scope.....	1
Normative references	1
Terms and definitions	1
Classification of cakes	2
Essential composition and quality requirements	2
Hygiene.....	3
Food additives	3
Packaging	4
Labelling.....	4
Sampling and test methods	4
Annex A (normative) – Determination of moisture content.....	5
Annex B (normative) – Determination of acid insoluble ash.....	6
Annex C (normative) – Determination of acidity of extracted fat.....	8
Annex D (normative) – Determination of fruit content	9

FOREWORD

This draft Malawi standard has been prepared by *MBS/TC 19*, Technical committee on *Bread and confectioneries*, to provide requirements for cakes.

The draft Malawi standard was prepared with reference to the following national standard:

Uganda standard, US 1923:2023, *Cake – Specification*.

Acknowledgement is made for the use of the information.

TECHNICAL COMMITTEE

This draft Malawi standard was prepared by *Technical Committee MBS/TC 19, Bread and confectioneries*, and the following companies, organisations and institutions were consulted:

Bakelines Limited;

Bakeman's Confectioneries Limited;

Bakhresa Malawi;

Blantyre City Council;

Bread Talk;

Bvumbwe Agricultural Research Station;

Competition and Fair Trading Commission;

Consumers Association of Malawi;

H.M.S Food and Grains Limited;

International Potato Centre Malawi;

Kachere Bakery;

Lilongwe University of Agriculture and Natural Resources;

Malawi University of Business and Applied Sciences;

Mega Bakers;

Ministry of Health – Department of Nutrition, HIV and AIDS;

Ministry of Trade and Industry;

National Fortification Alliance;

Rab Processors;

Shoprite Trading Limited;

Tehilah Bakery;

University of Malawi; and

Universal Industries.

NOTICE

The approved shall be reviewed every five years, or earlier when it is necessary, in order to keep abreast of progress. Comments are welcome and shall be considered when the approved is being reviewed.

DRAFT MALAWI STANDARD

Cake – Specification

1 SCOPE

This draft Malawi standard provides the requirements, sampling and test methods for cakes intended for human consumption.

2 NORMATIVE REFERENCES

The following standards contain provisions which, through reference in this text, constitute provisions of this draft proposal. All standards are subject to revision and, since any reference to a standard is deemed to be a reference to the latest edition of the standard, parties to agreements based on this draft Malawi standard are encouraged to take steps to ensure the use of the most recent editions of the standards indicated below. Information on currently valid national and international standards can be obtained from the Malawi Bureau of Standards.

MS 19, *Labelling of pre-packed foods – General standard*;

MS 21, *Food and food processing units – Code of hygienic conditions*;

MS 145, *Cereals and cereal products – Sampling*;

MS 237, *Food additives – General standard*;

ISO 4833-1, *Microbiology of the food chain – Horizontal method for the enumeration of microorganisms – Part 1: Colony count at 30 °C by the pour plate technique*;

ISO 6579-1, *Microbiology of the food chain – Horizontal method for the detection, enumeration and serotyping of Salmonella – Part 1: Detection of Salmonella spp*;

ISO 16649-2, *Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of beta-glucuronidase-positive Escherichia coli – Part 2: Colony count technique at 44 °C using 5-bromo-4-chloro-3-indolyl beta-D- glucuronide*; and

ISO 21527-2, *Microbiology of food and animal feeding stuffs – Horizontal method for the enumeration of yeasts and moulds – Part 2: Colony count technique in products with water activity less than or equal to 0.95*.

3 TERMS AND DEFINITIONS

For the purposes of this draft proposal, the following terms and definitions shall apply:

3.1 cake

sweet baked food made from thick batter usually containing flour, nutritive sweetener, shortenings, raising or leavening agents

3.2 extraneous matter

includes inorganic matter such as sand, glass, metal, gravel, dirt, pebbles, stones, lumps of earth, clay and mud and organic matter such as chaff, straw, weed seeds and grains of crops, shell, hair, insects or insects fragments or any other foreign matter

3.3

food grade packaging material

packaging material, made of substances which are safe and suitable for their intended use and which will not impart any toxic substance or undesirable odour or flavour to the product

4 CLASSIFICATION OF CAKES

Cakes can be classified into two major categories based on ingredients and mixing method as follows:

4.1 High-fat or shortened cakes

These are cakes that are made by the addition of fat or shortening. Usually prepared by using creaming or conventional method and two stage or blending method or melted mixture method.

4.2 Low-fat or un-shortened (foam type) cakes

These are cakes that are made without the addition of fat or shortening. Usually prepared by using foaming or sponge method, angel food method and chiffon method.

5 ESSENTIAL COMPOSITION AND QUALITY REQUIREMENTS

5.1 Essential ingredients

In the preparation of batter for the different cakes, the following ingredients complying with relevant Malawi standards shall be used:

- a) Edible flour;
- b) Shortening such as margarine, butter, ghee, edible vegetable oils, butter oil etc.;
- c) Nutritive sweeteners such as sugar, honey, liquid glucose, edible molasses, or non-nutritive sweeteners such as sorbitol, aspartame, etc.;
- d) Leavening agents such as baking powder, ammonium bicarbonate, sodium bicarbonate, ammonium carbonate and any other approved aerating agents;

5.2 Optional ingredients

In addition to the essential ingredients, any of the following ingredients may be added to the cake:

- a) Fruit and fruit products such as dessicated coconut, glazed cherries, candied peels or dry fruits e.g. currants, dates, cashewnuts, almonds, edible nuts, raisins, sultanas etc.;
- b) Spices and condiments such as crystallized ginger, cumin, cinnamon etc.;
- c) Cereal and cereal products such as semolina etc.;
- d) Edible oilseeds, flours, concentrates and isolates such as defatted or lecithinated soya flour;
- e) Edible starch such as tapioca etc.;
- f) Portable water;
- g) Eggs;
- h) Milk and milk products such as milk powder, liquid milk etc.; and
- i) Miscellaneous such as cocoa powder, caramel, etc.

5.3 General requirements

Cakes shall:

5.3.1 Be suitably baked with no signs of under baking or over baking;

5.3.2 Be moist, uniform in texture and with even distribution of added ingredients;

5.3.3 Have the colour, texture, flavour and aroma characteristics of typical well-baked cakes;

5.3.4 Be free from any rancidity or other objectionable taste, insect or fungus and mould infestation; and

5.3.5 Free from foreign matter.

NOTE: The appearance, taste and odour shall be determined in accordance with the methods of sensory analysis of food.

5.4 Specific requirements

Cakes shall comply with the specific requirements stipulated in **Table 1**.

Table 1 – Specific requirements for cakes

S/N	Characteristic	Limit	Test method
1	Moisture, % m/m	15 – 27	Annex A
2	Acid insoluble ash (on dry matter basis), % m/m, max.	0.1	Annex B
3	Acidity of extracted fat (as oleic acid), % m/m, max.	1.5	Annex C

Note: Fruit content for fruitcakes, percentage m/m minimum shall be 7.0. Test method see **annex D**.

5.5 Microbiological limits

Cakes shall comply with the microbiological limits indicated in **Table 2**.

Table 2 – Microbiological limits for cakes

S/N	Microorganism	Maximum limit	Test method
1	Total viable count, cfu/g	10 ⁴	ISO 4833-1
2	Yeast and mould, cfu/g	10 ³	ISO 21527-2
3	<i>Salmonella spp</i> , cfu/g	Shall be absent	ISO 6579-1
4	<i>Escherichia coli</i> , cfu/g	Shall be absent	ISO 16649-2
5	<i>Staphylococcus aureus</i> , cfu/g	10	ISO 6888-1

6 HYGIENE

Cakes shall be manufactured in premises complying with the hygienic practices stipulated in MS 21.

7 FOOD ADDITIVES

Only those food additives listed under this product in MS 21 shall be used and only within the limits specified.

8 PACKAGING

Cakes shall be packed in food grade packaging materials that shall not affect the quality of the product.

9 LABELLING

In addition to the provisions specified in MS 19, the following information shall be clearly marked on each package:

- a) Name of product as "Cake";
- b) Name and address of the manufacturer;
- c) Batch/code number;
- d) Net weight in metric units;
- e) List of ingredients in descending order of proportions;
- f) Date of manufacture;
- g) Best before date;
- h) Country of origin;
- i) Storage instructions; and
- j) Declarations of allergens , if any.

10 SAMPLING AND TEST METHODS

10.1 Sampling shall be done in accordance with MS 145.

10.2 Testing shall be done in accordance with the methods indicated against each requirement in **Tables 1 and 2** or other equivalent methods.

ANNEX A
(Normative)

DETERMINATION OF MOISTURE CONTENT

A.1 APPARATUS

A.1.1 Moisture dish, made of porcelain, silica, glass or aluminium.

A.1.2 Oven, electric maintained at 105 ± 1 °C.

A.1.3 Desiccator.

A.2 PROCEDURE

A.2.1 Weigh accurately about 5 g of the ground sample in the moisture dish previously dried in the oven and weighed.

A.2.2 Place the dish in the oven maintained at 105 ± 1 °C for 4 hrs.

A.2.3 Cool in the desiccators and weigh.

A.2.4 Repeat the process of drying, cooling and weighing at 30 min intervals until the difference between the two consecutive weights is less than one milligram.

A.2.5 Record the lowest mass.

A.3 CALCULATION AND EXPRESSION OF RESULTS

A.3.1 Moisture content, w , expressed as a percentage by mass of the product as received, is given by the following formula:

$$w = \frac{100 (m_1 - m_2)}{m_1 - m}$$

Where,

m_1 is mass in g of the dish with the material before drying;

m_2 is mass in g of the dish with the material after drying to constant weight; and

m is mass in g of the empty dish.

ANNEX B
(Normative)

DETERMINATION OF ACID INSOLUBLE ASH

B1 APPARATUS

- B.1.1 Dish**, Silica or porcelain.
- B.1.2 Muffle furnace**, maintained at 600 ± 20 °C.
- B.1.3 Water-bath**.
- B.1.4 Desiccator**.

B.2 REAGENT

Diluted Hydrochloric acid, approximately 5 N, prepared from concentrated hydrochloric acid.

B.3 PROCEDURE

- B.3.1** Weigh accurately about 20 g of the finely powdered cake in the previously weighed dish and ash in the muffle furnace at 600 ± 20 °C until light grey ash is obtained.
- B.3.2** Remove the dish from the furnace and allow it to cool at room temperature.
- B.3.3** Add 25 ml of the hydrochloric acid to the dish, cover with a watch-glass and heat on a boiling water-bath for 10 min.
- B.3.4** Mix the contents with the tip of a glass rod and filter through Whatman filter paper No. 42 or its equivalent.
- B.3.5** Wash the filter paper with water until the washings are free from acid, tested with blue litmus paper.
- B.3.6** Return the washed filter paper to the dish for ashing in the muffle furnace as above.
- B.3.7** Cool the dish in the desiccator and weigh.
- B.3.8** Again, ignite the dish for half an hour in the furnace, cool and weigh. Repeat this operation until the dish has a constant mass, the difference between successive weighings being less than 1 mg.
- B.3.9** Filter 25 ml of the hydrochloric acid through a blank filter paper, wash, and ash and weigh it as in the case of acid insoluble ash.
- B.3.10** Substitute its mass from the mass of insoluble ash of the sample.

B.4 CALCULATION AND EXPRESSION OF RESULTS

- B.4.1** Acid insoluble ash, percent by mass (A)

$$A = \frac{100 (m_1 - m)}{m_2}$$

Where,

m_1 is mass, in g, of the dish containing acid insoluble ash (see **Note**);

m is mass, in g, of the empty dish in which the sample is taken for ashing; and

m_2 is mass, in g, of the sample.

NOTE: Correct the acid insoluble ash mass for the blank of filter paper, if any.

B.4.2 Acid insoluble ash, percent by mass on dry basis (AD)

$$AD = \frac{A \times 100}{100 \times m}$$

Where,

A is acid insoluble ash, per cent by mass (see **C.4.1**); and

m is percentage of moisture in the cake (see **A.3**).

ANNEX C
(Normative)

DETERMINATION OF ACIDITY OF EXTRACTED FAT

C.1 APPARATUS

Soxhlet apparatus, with a 250 ml flat bottom flask.

C.2 REAGENTS

C.2.1 Petroleum ether, boiling point 40 °C to 80 °C.

C.2.2 Benzene-Alcohol-Phenolphthalein stock solution. To one litre of distilled benzene, add one litre of alcohol or rectified spirit and 0.4 g of phenolphthalein. Mix the contents well.

C.2.3 Standard Potassium Hydroxide solution, 0.05 N.

C.3 PROCEDURE

C.3.1 Weigh accurately about 10 g of finely powdered cake and transfer it to the thimble and plug it from the top with extracted cotton and filter paper.

C.3.2 Dry the thimble with the contents for 15 to 30 min at 100 °C in an oven.

C.3.3 Take the weight of the empty dry Soxhlet flask.

C.3.4 Extract the fat in the Soxhlet apparatus for 3 – 4 hrs and evaporate off the solvent in the flask on a water-bath.

C.3.5 Remove the traces of the residual solvent by keeping the flask in the hot air oven for about half an hour and weigh.

C.3.6 Cool the flask and add 50 ml of mixed benzene-alcohol-phenolphthalein reagent (see **C.2.2**) and titrate the contents to a distinct pink colour with the potassium hydroxide solution taken in a 10 ml micro burette.

C.3.7 If the contents of the flask become cloudy, during titration, add another 50 ml of the reagent (**C.2.2**) and continue the titration.

C.3.8 Make a blank titration of the 50 ml reagent. Subtract from the titre of the fat, the blank titre.

C.4 CALCULATION AND EXPRESSION OF RESULTS

Acidity of extracted fat, (as oleic acid) per cent by mass (FA):

$$FA = \frac{1.41 \times V}{m_1 - m_2}$$

Where,

V is volume of 0.05 N potassium hydroxide solution used in the titration after subtracting the blank;

m₁ is mass, in g, of the Soxhlet flask containing fat; and

m₂ is mass, in g, of the empty Soxhlet flask.

ANNEX D
(Normative)

DETERMINATION OF FRUIT CONTENT

D.1 This method determines the contents of both dry fruits and preserved fruits in fruitcakes.

D.2 APPARATUS

D.2.1 Bread or cake knife.

D.2.2 Brush.

D.2.3 Filter paper or clean cloth.

D.2.4 Weighing balance.

D.3 PROCEDURE

D.3.1 Weigh four cake slices (approximately 100 g) accurately.

D.3.2 Pick the pieces of preserved fruit and dry fruit.

D.3.3 Pick each piece of preserved fruit and dry fruit and wipe them with a hair brush or a filter paper or clean cloth.

D.3.4 Weigh the fruits so collected and calculate the percentage of fruits from the mass of fruits picked out separately for preserved fruit and dry fruits.

THE MALAWI BUREAU OF STANDARDS

The Malawi Bureau of Standards is the standardizing body in Malawi under the aegis of the Ministry of Trade and Industry. Set up in 1972 by the Malawi Bureau of Standards Act (Cap: 51:02), the Bureau is a parastatal body whose activities aim at formulating and promoting the general adoption of standards relating to structures, commodities, materials, practices, operations and from time to time revise, alter and amend the same to incorporate advanced technology.

CERTIFICATION MARK SCHEME

To bring the advantages of standardization within the reach of the common consumer, the Bureau operates a Certification Mark Scheme. Under this scheme, manufacturers who produce goods that conform to national standards are granted permits to use the Bureau's "Mark of Quality" depicted below on their products. This Mark gives confidence to the consumer of the commodity's reliability.

