DRAFT UGANDA STANDARD

First Edition 2017-mm-dd

Egg powder — Specification



Reference number DUS 1683: 2017

© UNBS 2017

Compliance with this standard does not, of itself confer immunity from legal obligations

A Uganda Standard does not purport to include all necessary provisions of a contract. Users are responsible for its correct application

© UNBS 2017

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilised in any form or by any means, electronic or mechanical, including photocopying and microfilm, without prior written permission from UNBS.

Requests for permission to reproduce this document should be addressed to

The Executive Director Uganda National Bureau of Standards P.O. Box 6329 <u>Kampala</u> Uganda Tel: +256 414 333 250/1/2/3 Fax: +256 414 286 123 E-mail: <u>info@unbs.go.ug</u> Web: www.unbs.go.ug

Contents

Page

Forewo	ord	iv
Introdu	ction	v
1	Scope	1
2	Normative references	1
3	Terms and definitions.	2
4 4.1 4.1.1 4.1.2 4.1.3	Description Types of egg powder and application Whole Powdered Eggs Powdered Egg Whites Powdered Egg Mix	4 4 4 4
5 5.1 5.2 5.2.1 5.2.2 5.2.3	Requirements	4 4 4 5 5
6 6.1	Contaminant Veterinary Drug Residues	6 6
7 7.1	Hygiene Microbiology	6 6
8	Packaging	6
9	Labelling	6
10	Nutrition and health claim	7
11	Sampling	7
12	Testing	7
Annex	A (normative) Sampling of egg powder	8
Annex	B (normative) Determination of moisture content and total solids1	1
Annex	C (normative) Protein (Kjeldahl determination)1	3
Annex	D (normative) Determination of Total lipids1	4
Annex	E (normative) Determination of Ash content1	5
Bibliog	raphy1	6

Foreword

Uganda National Bureau of Standards (UNBS) is a parastatal under the Ministry of Trade, Industry and Cooperatives established under Cap 327, of the Laws of Uganda, as amended. UNBS is mandated to coordinate the elaboration of standards and is

- a) a member of International Organisation for Standardisation (ISO) and
- b) a contact point for the WHO/FAO Codex Alimentarius Commission on Food Standards, and
- c) the National Enquiry Point on TBT Agreement of the World Trade Organisation (WTO).

The work of preparing Uganda Standards is carried out through Technical Committees. A Technical Committee is established to deliberate on standards in a given field or area and consists of key stakeholders including government, academia, consumer groups, private sector and other interested parties.

Draft Uganda Standards adopted by the Technical Committee are widely circulated to stakeholders and the general public for comments. The committee reviews the comments before recommending the draft standards for approval and declaration as Uganda Standards by the National Standards Council.

The committee responsible for this document is Technical Committee UNBS/TC 2, [Food and Agriculture], Subcommittee SC 12, [Meat, poultry and processed products].

This is the first edition (DUS 1683:2017) which has been technically developed.

Introduction

An egg consists of 3 main parts: the shell (10 %), the albumen or egg white (60 %) and the yolk (30 %). Egg, in full or parts, is used to prepare powder used in different industries.

Manufacture of dried egg powder starts with breaking of eggs and removing egg-shells. After removal of shells, the mixture is filtered and stored in storage tanks at about 4 °C and then it is taken to tubular heater, wherein it is pasteurised at about 5 minutes at 62 °C. It is filtered and passed to high pressure spray drier with the help of high pressure pump. The material which comes out of high pressure spray drier is not only in dried form but also in powder form, which is then packed in polylined boxes.

The major advantages of powdered eggs over fresh eggs are the added value, reduced weight per volume of whole egg equivalent, and the longer shelf life. Other advantages include smaller usage of storage space and lack of need for regular refrigeration. Powdered eggs can be used without rehydration when baking, and can be rehydrated to make dishes such as scrambled eggs and omelettes.

Egg powder — Specification

1 Scope

This Draft Uganda Standard specifies the requirements, method of sampling and test for egg powder obtained from poultry eggs. This includes all egg powder processed from edible birds' eggs domesticated for human consumption.

2 Normative references

The following referenced documents referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

AOAC Official Method 931.06, Phosphorus (Total) (P₂O₅) in Eggs

DUS ISO 936, Meat and meat products — Determination of total ash

US 28, Code of practice for hygiene in the food and drink manufacturing industry

US 45, General standard for food additives (5th Edition)

US CAC/MRL-2, Maximum Residue Limits (MRLs) and Risk management Recommendations (RMRs) for Residues of Veterinary Drugs in food

US CAC/RCP 15, Code of hygienic practice for eggs and egg products

US CAC/GL 50, General guidelines on sampling

US EAS 5, Refined white sugar - Specification

US EAS 12, Potable water — Specification

US EAS 35, Fortified food grade salt - Specification

US EAS 38, Labelling of pre-packaged foods — General requirements

US EAS 49, Dried whole milk and skimmed milk powder — Specification

US EAS 805, Use of nutrition and health claims - Requirements

US ISO 1736, Dried milk and dried milk products – Determination of fat content – Gravimetric method (Reference method)

US ISO 1737, Evaporated milk and sweetened condensed milk — Determination of fat content — Gravimetric method (Reference method)

US ISO 4832, Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coliforms — Colony-count technique

US 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

US ISO 4833-2, Microbiology of the food chain – Horizontal method for the enumeration of microorganisms – Part 2: Colony count at 30 °C by the surface plating technique

US ISO 5537, Dried milk – Determination of moisture content (Reference method)

US ISO 6579 Cor. 1, Microbiology of food and animal feeding stuffs — Horizontal method for the detection of Salmonella spp

US ISO 6888-1, Microbiology of food and animal feeds — Horizontal method for enumeration of Coagulasepositive staphylococci. (Staphylococcus aureus and other species), Detection and MPN technique for low numbers

US ISO 8968-1, Milk and milk products – Determination of nitrogen content – Part 1: Kjeldahl principle and crude protein calculation

US ISO 21527-1, Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of yeasts and moulds — Part 1, Colony count technique in products with water activity greater than 0.95

US 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 document, the following terms and definitions apply.

3.1

Poultry

any kind of domesticated bird, captive-raised for its utility, Poultry can be defined as domestic fowls, including chicken, duck, turkey, goose, quail, pheasant, emu, ostrich and guinea fowl., raised for the production of meat or eggs used as food

3.2

egg

female reproductive primary cell, the ovum

3.3

incineration

a thermal treatment process that involves the combustion of organic substances contained in an egg converting the material into ash, flue gas, and heat

3.4

powder

fine particle to which any dry substance is reduced by methods such as spray drying, pounding, grinding or triturating during processing

3.5

Contaminant

any substance not intentionally added to food, which is present in such food as a result of the production (including operations carried out in crop husbandry, animal husbandry and veterinary medicine), manufacture, processing, preparation, treatment, packing, packaging, transport or holding of such food or as a result of environmental contamination. The term does not include insect fragments, rodent hairs and other extraneous matter)

3.6

homogenisation

any of several processes used to make a mixture of two mutually non-soluble substance uniform.

3.7

dirty egg

an egg that has a shell that is unbroken and has adhering dirt or extraneous matter , or stains covering more than 1/4 of the shell surface

3.8

extraneous matter

any foreign matter in product associated with objectionable conditions or practices in production, storage, or distribution; included are filth, decomposed material due to microorganisms, and miscellaneous matter such as sand and soil, glass, rust, or other foreign substance

3.9

emulsion

a mixture of two or more liquids that are normally immiscible (unmixable or unblendable). Emulsions are part of a more general class of two-phase systems of matter called colloids

3.10

Emulsion capacity

parameter used to estimate oil in water emulsion, gives a maximum amount of oil that is combined before inversion

3.11

incubator egg

egg that has been previously put under the incubator and provided environmental controlled conditions, such as temperature and humidity for hatching but fail to hatch

3.12

desiccator

is a sealable enclosure containing materials used for preserving moisture-sensitive items such as cobalt chloride paper for another use. A common use for desiccators is to protect chemicals which are hygroscopic or which react with water from humidity.

3.13

food additive

any substance not normally consumed as a food by itself and not normally used as a typical ingredient of the food, whether or not it has nutritive value, the intentional addition of which to food for a technological (including organoleptic) purpose in the manufacture, processing, preparation, treatment, packing, packaging, transport or holding of such food results, or may be reasonably expected to result (directly or indirectly), in it or its by-products becoming a component of or otherwise affecting the characteristics of such foods.

3.14

colloid

a homogeneous, non-crystalline substance consisting of large molecules of one substance dispersed through a second substance. Colloids include gels, sols, and emulsions, the particles do not settle and cannot be separated out by ordinary filtering or centrifuging like those in a suspension

4 Description

4.1 Types of egg powder and application

4.1.1 Whole Powdered Eggs

Whole powdered eggs contain the whole egg (whites and yolk) and are very versatile in baking. They can be added with the dry ingredients when baking Whole egg powder can be used successfully to make mayonnaise. It thickens pudding just like fresh eggs, and can be used to make omelettes, scrambled eggs and Eggnog. The other classical food applications where rising qualities are not essential, such as crackers, cookies and pasta.

4.1.2 Powdered Egg Whites

Powdered egg whites contain just the white of the egg and work just as well in recipes as egg whites that have been hand-separated. Egg white powder is a lot less messy than separating fresh eggs which also make them a great time saver. They are perfect for whipping into a meringue. It is also used in a range of items from fish, meat, and potato preparations to bakery and pastry products.

4.1.3 Powdered Egg Mix

Powdered egg mix is mostly whole egg powder with a bit of powdered milk and vegetable oil blended into the powder. The powdered egg mix has been formulated to make scrambled eggs, omelets or French toast. It is especially well suited for camping trips and other outings and substitute for fresh egg yolk to obtain colour, texture, and emulsion capacity. Egg yolk powder is most frequently used in mayonnaise, dressings, sauces and croissants.

5 Requirements

5.1 General requirements

Egg powder must be homogeneous, fit for human consumption, practically free from shell fragments, antibiotics residues and foreign matter. The taste, colour and odour of egg powder shall be natural and characteristic of each product.

The eggs used must;

- a) have the ability to produce the powder that shall be easily reconstituted
- b) not be incubator eggs
- c) not be contaminated with the egg content of dirty eggs

d) be sourced from producers who follow egg guidelines

5.2 Specific requirements

5.2.1 Ingredients

All the ingredients used shall be in accordance with their respective standards as below;

- a) Edible salt in accordance with US EAS 35.
- b) Refined white Sugar in accordance with US EAS 5.

- c) Powdered milk in accordance with US EAS 49.
- d) Portable drinking water in accordance with US EAS 12.
- e) Vitamins or minerals in accordance with US 45.

Note 1: Any other ingredient may be used provided there exists the standard or specification of the intended ingredient.

5.2.2 Processing requirements

The raw material, equipment and personnel's in the processing line shall be hygienic and all processes shall be in accordance with US 28.

- a) The eggs, before breaking, shall be properly washed, dried and cooled, if necessary.
- b) Glucose present in the liquid contents of original eggs shall be removed before drying, if necessary
- c) The liquid contents of the eggs shall be pasteurized by heating for 5 minutes at 61 °C to 62 °C in a plate type pasteurizer or by any other suitable method.

5.2.3 Requirements of the finished product

The egg powder shall;

- a) have a uniform yellow, white or orange-yellow colour and a smooth and uniform texture, shall be free from lumps and gritty material.
- b) retain the original properties of fresh egg, like solubility of protein, aerating capacity, binding power and palatability.
- c) reconstitute readily and quickly when mixed with three times its mass of lukewarm water (about 40 °C).
- d) free from unpleasant off-flavours on reconstitution.
- e) contain added carotene and riboflavin.
- f) free from discoloration, pathogenic micro-organisms, and any extraneous matter.
- g) comply with the chemical requirements as given in Table 1 below.

S/No.	Parameter	Requirement	Method of test
i)	Moisture content, % by mass, Max.	2.0	Annex B
	Total solid, % by mass, min.	95	US ISO 5537
ii)	Protein (N × 6.68), % by mass, Min.	45.0	Annex C
			US ISO 8968-1
iii)	Lecithin and fat % by mass, Min	40.0	Annex D
			USISO 1736/1737
vi)	Phosphorus (Total) (P ₂ O ₅), % by mass, Min.	1.25	AOAC 931

Table 1 — Chemical requirements for egg powder

v)	Total ash, % by mass, Max.	3.6	Annex E
			DUS ISO 936

6 Contaminant

6.1 Veterinary Drug Residues

Egg powder shall have a maximum residual limit for veterinary drugs in accordance with US CAC/MRL-2

7 Hygiene

Egg powder shall be handled, stored and transported following hygienic practices in accordance with US CAC/RCP 15, the personal handling egg powder shall also be clean and health.

7.1 Microbiology

Egg powder shall be free from microorganisms as stated in Table 2 below;

S/No.	Microorganism	Limit	Test method
i)	Salmonella spp	Absent	US ISO 6579
ii)	Total plate count, cfu per gram, Max.	75 000	US ISO 4833
iii)	Coliform count, cfu per gram, Max.	100	US ISO 4832
vi)	Yeast and mould count, cfu per gram, Max.	50	US ISO 21527-2
v)	Staphylococcus areaus	Negative	US ISO 6888-1

Table 2 — Microbiological requirements for Egg powder

8 Packaging

Egg powder shall be;

- a) gas packaged in nitrogen or carbon dioxide in suitable tinplate or flexible containers and containers shall be packed in suitable cases,
- b) packaged in food grade material and
- c) number of containers in each case shall be subject to agreement between the purchaser and the packer.

9 Labelling

In addition to the requirements of US EAS 38, the following labelling requirements shall apply and shall be legibly and indelibly marked.

a) Common name of the food to be declared on the label as 'Egg powder';

- b) Net contents by weight (`System International') units;
- c) Name and physical address of the manufacturer/distributor;
- d) Country of origin;
- e) Lot /batch identification;
- f) Shelf life: best before/use by date;
- g) Statement 'Food for Human Consumption' shall appear on the package;
- h) Storage conditions as "Store in a cool dry place away from contaminants":
- i) Instructions on disposal of used package;
- j) Each container may also be marked with a Certification Mark
- k) Any other requirement as given OIML R87, Quantity of product in pre-packages.
- I) Names of the ingredients
- m) Packing date.
- n) Instruction for use
- Product storage life of about 5 to 10 years when stored in absence of oxygen under a cool storage environment.

Note 1: once a container of egg powder has been opened, it is comparable to any other dehydrated dairy product and shelf-life would be measured in weeks or a month. After opening of the container it should be stored under refrigeration conditions or use an oxygen absorber in the package

10 Nutrition and health claim

Egg powder may have health claims associated with nutritional composition and health. Such claims when declared shall be consistent with US EAS 805.

11 Sampling

The method of drawing representative samples of the material and the criteria for conformity shall be as prescribed in Annex A, detail of some guidelines. Sampling shall be carried out in accordance with US CAC/GL 50.

12 Testing

Testing of the sample shall be carried out using the methodology in Annex B, C, D and E

Annex A

(normative)

Sampling of egg powder

A.1 General Requirements

In drawing, preparing, storing and handling samples, the following precautions and directions shall be observed.

A.1.1 Samples shall be taken in a protected place not exposed to damp air, dust, or soot.

A.1.2 The sampling instrument shall be clean and dry when used. When taking samples for bacteriological examination it shall be sterile.

A.1.3 Precautions shall be taken to protect the samples, the material being sampled, the sampling instrument, and the containers for sample from adventitious contamination.

A.1.4 The samples shall be placed in clean and dry glass containers. The sample containers shall be of such a size that they are almost completely filled by the sample. The sample containers shall, in addition, be sterile when they are used for samples for bacteriological examination.

A.1.5 Each container shall be sealed airtight after filling and marked with full details of sampling, batch or code number, name of the manufacturer and other important particulars of the consignment.

A.1.6 Samples shall be stored in such a manner that the temperature of the material does not vary unduly from the normal temperature.

A.2 Scale of sampling

A.2.1 Lot, All the containers in a single consignment of one type of material drawn from a single batch of manufacture shall constitute a lot. If the consignment is declared to consist of different batches of manufacture, the batches shall be marked separately and the group of containers in each batch shall constitute separate lots.

A.2.1.1 Sample shall be tested from each lot for ascertaining its conformity to the requirements of this standard.

A.2.2 The number of containers to be selected from the lot shall depend on the size of the lot and shall be as given in Table A.1.

A.2.3 The containers shall be chosen at random from the lot and for this purpose a random number table as agreed between the purchaser and the supplier shall be used. If such table is not available, the following procedure shall be adopted.

Starting from any container, in the lot, count them as 1, 2, 3,.... up to r in a systematic manner, where r is equal to the integral part of N/n, N being the total number of containers in the lot, and the number of containers to be chosen (see Table A.1). Every container thus counted shall be separated until the requisite number of containers is obtained from the lot to give samples for test.

Lot size	Sample size (for tests other than microbiological)	Sub-sample size (for microbiological tests)
(1)	(2)	(3)
2 to 25	2	1
26 to 100	3	1
101 to 300	5	2
301 to 500	7	3
501 and above	9	4

Table A.1 — Number of containers to be selected for sampling

A.3 Test samples and referee samples

A.3.1 Preparation of individual sample

Draw with a suitable sampling instrument approximately equal quantities of the material from different parts of the container till the quantity collected is about 500 g and divide it into three equal parts. Each part so obtained shall constitute a sample representing the container and shall be transferred immediately to thoroughly clean and dry containers sealed airtight with particulars given under A.1.5. The individual sample so obtained shall be divided into three sets in such a way that each set has a sample, representing each selected container. One of these shall be marked for the purchaser, another for the vendor and the third for the referee.

A.3.2 Preparation of composite sample

From the material from each selected container, remaining after the individual sample has been taken, approximately equal quantities of the material shall be taken and mixed together so as to form a composite sample weighing about 600 g. This composite sample shall be divided into three equal parts and transferred to clean and dry containers sealed airtight and labelled with the particulars given in A.1.5. One of these composite samples shall be for the purchaser, another for the vendor and the third for the referee.

A.3.3 Preparation of Samples for microbiological examination

From the selected container select a sub-sample Draw with a suitable sampling instrument, which is sterile, at least 100 g of the material and mix thoroughly under aseptic conditions to form a sample for microbiological examination. Divide the sample (taking care not to bring in microbiological contamination in the material) into three equal parts. Each part so obtained shall constitute a sample representing the parts. Each part so obtained shall constitute a sample representing the parts. Each part so obtained shall container and shall be transferred to sterile glass containers sealed, airtight and labelled with particulars given in A.1.5. They shall be marked, in addition, with the words 'For Microbiological Examination'. The samples so obtained shall be divided into three sets in such a way that each set has a sample representing each selected container. One of these sets shall be marked for the purchaser, another for the vendor and the third for the reference.

A.3.4 Referee samples

Referee samples shall consist of a set of individual samples (A.3.1) and a composite sample (A.3.2) and set of samples for microbiological examination (A.3.3) marked for this purpose and shall bear the seals of the purchaser and the vendor. These shall be kept at a place as agreed between the two.

A.4 Number of tests

A.4.1 Tests for description, moisture, protein, lecithin and fat, organic P_2O_5 and total ash shall be conducted on each of the samples constituting a set of individual samples.

A.4.2 Tests for bacterial count, yeast and mould count, coliform count, staphylococcus and Salmonella shall be conducted on each of the samples meant for microbiological examination.

A.5 Criteria for conformity

A.5.1 The lot shall be declared as conforming to all the requirements of this specification when A.5.1.1 to A.5.1.2 are satisfied.

A.5.1.1 The test results on each of the individual samples for description, moisture, protein, lecithin and fat, organic P_2O_5 and total ash, shall satisfy the corresponding requirement given in Table A.1.

A.5.1.2 The test results for bacterial count, yeast and mould count, coliform count, staphylococcus and Salmonella shall satisfy the corresponding requirement as given in Table A.1.

Annex B

(normative)

Determination of moisture content and total solids

Preparation of drying cups

Liquid products

- Fill a deep drying cup with 40 g 50 g of sea sand and a small glass bar
- Dry the cup at 103 °C for 3 hours in the drying oven
- Cool down the cup in a desiccator for 1 hour

Dried product

- Dry a base drying at 103 °C for 3 hours in the drying oven
- Cool down the cup in a desiccator for 1 hour

Initial weight of the sample - (depends on the expected moisture)

Moisture (%)	Weight(grams)
< 20	8 – 10
20 – 50	6 – 8
50 - 80	4 – 6
80 – 90	3 – 4

Table B.1 — Moisture content and corresponding sample weights

Procedure for liquid or dry product

- 1. Weigh the empty cup
- 2. Weigh the sample in a dried cup
- 3. Admix liquid products with the sea sand until it is a smooth mass with the glass bar
- 4. Dry all the sample for 4 hours at 103 °C in a drying oven
- 5. Cool the cup for 1 hour in the desiccator
- 6. Weigh the cup with the sample
- 7. Calculate and report percentage solid

Calculations

Dry matter (%) = $\frac{A-B}{E} \times 100$

- E= initial weight of the sample (grams)
- T= weight of the dried empty cup (grams)
- A= weight of the dried cup with sample (grams)
- Moisture (%) = 100 dry matter (%)

Annex C (normative)

Protein (Kjeldahl determination)

Mince and homogenise the sample

Initial weight of the sample (E) - (depends on the expected protein)

Protein content (%)	Weight(grams)	
<1	8	
1 – 5	2 – 3	
5 – 10	1 – 1.5	
10 – 20	0.5 – 1	
>20	0.5	

Table C.1—Protein content and corresponding sample weights

Procedure

- 1. Weigh the sample in a kjeldahl flask
- 2. Add 20 ml of sulphuric acid, two catalyst tablets and 2 glass pearls
- 3. The digestion takes place at 400 °C 410 °C for 3 hours in kjeldhal digestion apparatus (after that the solution in the tube is clear)
- 4. Carry out the steam distillation with the cooled sample solution (add 100 ml sodium brine (30 %), 100 ml water and 60 ml boron acid (4 %) as solvent for the nitrogen and titrate the transferred nitrogen with sulphuric acid (0.1N)

Protein content (%) = $\frac{V \times F \times F}{F}$

- V: consumption of the sulphuric acid
- F: 0.875 (N x 6025): Conversion factor for egg products

T: titre of the sulphuric acid

E: initial weight of the sample

Annex D (normative)

Determination of Total lipids

Total lipid includes glycerol esters, fatty acids, cholesterol and phospholipids

Preparation:

- Homogenise the samples
- Dry a 250 ml round bottomed flask for 1 hour at 103 °C
- Let it cool down in a desiccator and weigh the round bottomed flask (m1)

Initial weight of the sample (m0) – (depends on the expected lipid)

Table D.1—Egg products and corresponding sample weight

Egg products	Weight (grams)
Liquid whole egg	4-5
Liquid egg yolk	1-2
Dried whole egg	1 – 1.5
Dried egg yolk	0.5 – 1

Procedure

- 1. Weigh the sample in an extraction cartridge with 25 grams of sea sand
- 2. Homogenise the sample with a glass bar, and then add 25 grams of sodium sulphate and homogenise again
- 3. Cover the mixture with cotton and extract the lipid in a hot extraction tube with 100 ml cyclohexane / ethanol (1/1) for 6 hours
- 4. Filter the ether solution in the prepared round bottomed flask and re- rinse with ether
- 5. Evaporate the solvent again and dry the round bottomed flask for 1 hour at 103 °C, weigh after 1 hour of cooling in a desiccator (*m*2)

<u>Lipid content w (%)</u> = w = $\frac{m^2 - m^1}{m^0} \times 100$

Annex E (normative)

Determination of Ash content

Procedure

- 1. Temper the ashing dish at 550 °C in a muffle furnace for 2 hours, cool down in the desiccator for 1 hour and weigh
- 2. Weigh 5 grams of the sample into the ashing dish and add 1 ml of magnesium acetate solution (15 %)
- 3. Homogenise with a glass bar
- 4. Clean the glass bar with an ash free round filter and cover the sample with the filter
- 5. After clean controlled evaporation on a surface evaporator, put the ashing dish in a muffle furnace at 300 $^\circ\text{C}$ 350 $^\circ\text{C}$
- 6. Heat the muffle furnace to 600 °C
- 7. Incinerate the sample for 3 hours
- 8. Weigh the ashing dish after cooling in a desiccator for 1 hour
- 9. The ash content of magnesium acetate solution is acquired under comparable conditions in a multiple measurement

Calculation

Ash (g/100g) =
$$\frac{m2 - m3 - m1}{m0} \times 100$$

- m2 = mass of ashing dish after incineration of the sample (g)
- m1= mass of the prepared ashing dish (g)
- m0 = initial weight of the sample (g)
- m3 = mass of the 1 ml of the magnesium acetate solution (g)

Bibliography

- [1] AEB: 2006, American Egg Board Egg products Reference Guide, AEB. Chicago
- [2] IEC: 2007, Egg and Egg product standard, Guideline, International Egg Commission, London, UK
- [3] IS 4723:1978 (Revised in 2000), Specification for Egg powder
- [4] USA Emergency supply (https://www.usa emergence supply.com/information-centre/all....powdered eggs) accessed at 4:42pm; 16/01/17
- [5] UNECE: 1986: Hen egg products for use in the food industry— Standard

Certification marking

Products that conform to Uganda standards may be marked with Uganda National Bureau of Standards (UNBS) Certification Mark shown in the figure below.

The use of the UNBS Certification Mark is governed by the Standards Act, and the Regulations made thereunder. This mark can be used only by those licensed under the certification mark scheme operated by the Uganda National Bureau of Standards and in conjunction with the relevant Uganda Standard. The presence of this mark on a product or in relation to a product is an assurance that the goods comply with the requirements of that standard under a system of supervision, control and testing in accordance with the certification mark scheme of the Uganda National Bureau of Standards. UNBS marked products are continually checked by UNBS for conformity to that standard.

Further particulars of the terms and conditions of licensing may be obtained from the Director, Uganda National Bureau of Standards.



ICS 67.120.20

Price based on nn pages