

DRAFT UGANDA STANDARD

Second Edition
2021-mm-dd

Dairy whitener — Specification



Reference number
DUS 1600: 2021

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Foreword

Uganda National Bureau of Standards (UNBS) is a parastatal under the Ministry of Tourism, Trade and Industry established under Cap 327, of the Laws of Uganda. UNBS is mandated to co-ordinate 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/SPS Agreements 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 representatives of consumers, traders, academicians, manufacturers, government and other stakeholders.

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 1, milk and milk products

This second edition cancels and replaces the first edition (US 1600:2015), which has been technically revised.

Dairy whitener — Specification

1 Scope

This Draft Uganda standard specifies requirements, sampling and methods of test for dairy whitener.

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.

US EAS 39, *Hygiene in the food and drink manufacturing industry – Code of practice*

US 45, *General standard for food additives*

US 163, *Milk and milk products — Hygiene requirements*

US 738, *General standard for contaminants and toxins in food and feed*

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

US EAS 67, *Raw cow milk – Specification*

FDUS ISO 8156, *Dried milk and dried milk products — Determination of insolubility index*

US EAS 81-5, *Milk powders — Determination of titratable acidity (Routine method)*

US EAS 81-2, *Milk powders — Methods of analysis — Part 2: Determination of moisture content (Reference method)*

US EAS 81-3, *Milk powders — Methods of analysis — Part 3: Determination of fat content — Gravimetric method (Reference method)*

US EAS 81-1, *Milk powders — Methods of analysis — Part 1: Determination of ash and alkalinity*

US EAS 68-3, *Milk and milk products — Methods of microbiological examination — Part 3: Enumeration of colony forming units of yeasts and/or moulds - Colony-count technique at 25 °C*

US EAS 68-2-1, *Milk and milk products — Methods for microbiological examination — Part 2-1: Enumeration of coliforms — Colony count technique at 30 °C*

US EAS 162-1, *Milk and milk products — Part 1: Milk, cream and evaporated milk — Determination of total solids content (Reference method)*

US ISO 707, *Milk and milk products – Guidance on sampling*

US ISO 2446, *Milk – Determination of fat content*

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 6785, *Milk and milk products — Detection of Salmonella spp.*

US ISO 6731, *Milk, cream and evaporated milk – Determination of total solids content (Reference method)*

US ISO 8968-3, *Milk – Determination of nitrogen content – Part 3: Block-digestion method (Semi-micro rapid routine method)*

US ISO 11866-1, *Milk and milk products — Enumeration of presumptive Escherichia coli — Part 1: Most probable number technique using 4-methylumbelliferyl-beta-D-glucuronide (MUG)*

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

US ISO 6092, *Dried milk – Determination of titratable acidity (Routine method)*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply. Existing

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1 dairy whitener (sweetened partially skimmed milk powder)
milk product prepared through an appropriate processing of cow milk, goat milk, buffalo milk, or milk of any other species as defined under this regulation or a mixture there of, and contains added carbohydrates such as sucrose, dextrose and maltodextrin, singly or in combination.

3.2 food grade 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 Requirements

4.1 Essential Ingredients

4.1.1 All ingredients used for the manufacture of dairy whiteners shall be of good quality complying with the relevant standards.

4.1.2 The milk used shall be whole milk, skimmed milk, reconstituted/recombined powdered milk or a mixture of two or more products complying with the relevant standards.

4.2 General requirements

Dairy whitener shall:

- a) be white or light cream in colour;
- b) be uniform in composition and free from lumps except those that break up readily under slight pressure;

- c) practically free from scorched particles;
- d) be free of extraneous and foreign matter;
- e) be free from abnormal flavours or rancid odours before and after reconstitution;
- f) be free from added colours and flavours; and
- g) have a pleasant and acceptable when judged basing on sensory characteristics.

4.3 Specific requirements

4.3.1 Dairy whiteners shall comply with the specific requirements stipulated in table 1.

Table 1 — Specific requirements for dairy whiteners

S/N o.	Parameter	Requirement				Test method
		Skimmed Milk Dairy Whitener	Low Fat Dairy Whitener	Medium Fat Dairy Whitener	High Fat Dairy Whitener	
i)	Moisture content, % by mass, max.	4.0	4.0	4.0	4.0	US ISO 5537
ii)	Titratable acidity as lactic acid, per 100g powder, max.	18.0	18.0	1.25 18.0	--	US ISO 6092
iii)	Total solids, %, min.	96	96	96	96	US ISO 6731
iv)	Protein, %, min	34	34	34	34	US ISO 8968-3
v)	Milk fat, % by mass,	1.5 (maximum)	1.5 – 10.0	10 – 20.0	20 (Minimum)	US ISO 2446
vi)	Total milk solids, % by weight, min.	60	60	60	60	US ISO 6731
vii)	Insolubility index, mL, max.	1.5	1.5	1.5	1.5	US ISO 8156
viii)	Total ash (on dry basis), % by mass, max.	9.3	9.3	9.3	9.3	US EAS 81-1
ix)	Acid insoluble ash, % by mass, max.	0.1	0.1	0.1	0.1	Annex A
x)	Total added sugar (as sucrose), % by mass, max.	18	18	18.0	18	
xi)	Scorched particles	Disc B	Disc B	Disc B	Disc B	

The moisture content does not include water of crystallization of the lactose; the milk solids-not-fat content includes water of crystallization of the lactose.

Protein content is 6.38 multiplied by the total nitrogen determined.

5 Food additives

Food additives may be used in the preparation of dairy whiteners in accordance with US 45.

6 Contaminants

6.1 Pesticide and veterinary drug residues

Dairy whiteners shall conform to those maximum limits for pesticide and veterinary drug residues established by the Codex Alimentarius Commission.

6.2 Other contaminants

Dairy whiteners shall conform to those maximum limits for other contaminants established under US 738.

7 Hygiene

7.1 Dairy whiteners shall be produced, processed and handled under hygienic conditions and in appropriate premises in order to prevent contamination of the product in accordance with US 28 and US 163.

7.2 Dairy whiteners shall comply with the limits for micro-organisms specified in table 2.

Table 2 — Microbiological limits for dairy whiteners

S/No.	Microorganism	Limit	Method of test
i)	Total plate count, CFU/g, max.	10 ⁴	US ISO 4833-1
ii)	<i>E. Coli</i> , MPN/g, max	<1	US ISO 11866-1 ISO 16649-2
iii)	Coliforms, MPN/g, max.	0	US ISO 4831
iv)	<i>Staphylococcus aureus</i> , CFU/g, max.	Absent	US ISO 6888-1
v)	<i>Salmonella</i> , 25 g, max.	Absent	US ISO 6785 AOAC 967.26
vi)	Yeast and moulds, CFU/g, max	10	US ISO 6611

8 Weights and measures

The weight of the dairy whiteners shall comply with the weights and measures requirements.

9 Packaging

Dairy whitener shall be packaged in food grade containers which will safe guard the hygienic, nutritional and organoleptic qualities of the product. The containers including packaging materials shall not impart any toxic substance or undesirable odour to the product.

10 Labelling

In addition to the requirements in US EAS 38, the following specific labelling requirements shall apply and shall be legibly and indelibly marked:

- a) name of the product as"; Skimmed Milk Dairy Whitener, Low fat dairy whitener, Medium fat dairy whitener, or High fat dairy whitener, as appropriate;
- a) complete list of ingredients to be declared in descending order of proportion;

- b) name and physical address of processor/producer;
- c) batch or code number;
- d) storage conditions and instructions;
- e) date of manufacture;
- f) expiry date;
- g) net content in metric units; and
- h) country of origin.

11 Sampling

Sampling shall be done in accordance with US ISO 707.

Annex A (normative)

Determination of Acid insoluble ash

A.1 Apparatus

- A.1.1 Dish, Silica or porcelain.
- A.1.2 Muffle Furnace, Maintained at 600 ± 20 C.
- A.1.3 Water, Bath
- A.1.4 Desiccator

A.2 Reagents

Dilute Hydrochloric Acid, approximately 5 N, prepared from concentrated hydrochloric acid.

A.3 Procedures

A.3.1 Weigh accurately about 20 g of the biscuit powder in the previously weighed dish and ash in the muffle furnace at 600 ± 20 C until light grey ash is obtained. Remove the dish from the furnace and allow it to cool at room temperature.

A.3.2 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. Mix the contents with the tip of a glass rod and filter through Whatman filter paper No. 42 or its equivalent.

A.3.3 Wash the filter paper with water until the washings are free from acid, tested with blue litmus paper. Return the washed filter paper to the dish for ashing in the muffle furnace as above.

A.3.4 Cool the dish in the desiccator and weigh. Again ignite the dish for half an hour in the furnace, cool and weigh.

A.3.5 Repeat this operation until the dish has a constant mass, the difference between successive weighings being less than 1 mg. 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. Substitute its mass from the mass of insoluble ash of the sample.

A.4 Calculation and expression of results

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

$$\frac{100 M_1 - M}{M_2}$$

Where

M_1 mass, in g, of the dish containing acid insoluble ash (see Note),

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

M₂ mass, in g, of the sample.

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

A.4.2 acid insoluble ash, percent by mass (dry basis)

$$\frac{A \times 100}{100 \times M}$$

Where

A acid insoluble ash, per cent by mass (see A.4.1), and

M percentage of moisture in the powdered milk (see A.3

Bibliography

- [1] IS 12299:1998, *Dairy whitener – Specification*
- [2] US 1600:2015, *Dairy whitener – Specification*

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