DUS 2728

DRAFT UGANDA STANDARD

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Milking jelly — Specification

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

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Foreword

Uganda National Bureau of Standards (UNBS) is a parastatal under the Ministry of Trade, Industry and Cooperatives established under Cap 210, of the Laws of Uganda, as amended. UNBS is mandated to co-ordinate the elaboration of standards and is

(a) a member of International Organisation for Standardisation (ISO),

(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 310, *Cosmetics and related products*.

Milking jelly— Specification

1 Scope

This Draft Uganda Standard specifies requirements, sampling and test methods for milking jelly used on animals udders/ teats for lubrication and moisturizing purposes to prevent the teats/udder from cracking and chapping during manual and machine milking.

2 Normative references

The following documents are 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.

ISO 8534, Animal and vegetable fats and oils — *Determination of water content — Karl Fischer method (pyridine free)*

ISO 21150, *Cosmetics – Microbiology – Detection of Escherichia coli*

ISO 21527, (all parts), *Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of yeasts and moulds*

US EAS 847-16, *Cosmetics — Analytical methods — Part 16: Determination of lead, mercury and arsenic content*

US ISO 2137*, Petroleum products and lubricants Determination of cone penetration of lubricating greases and petrolatum*

US ISO 21149, *Cosmetics – Microbiology – Enumeration and detection of aerobic mesophilic bacteria*

US ISO 22718, *Cosmetics — Microbiology — Detection of Staphylococcus aureus*

3 Terms and definitions

For the purposes of this document, the following term and definition apply.

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

— IEC Electropedia: available at http://www.electropedia.org/

3.1
milking jelly
jelly applied teats and udder of dairy animals when milking for lubrication and moisturizing purposes to prevents the teats/udder from cracking cracking, chapping and reduce the risk of mastitis (udder infection)

Note 1 to entry: Other names such as milking salve, udder balm, may be used to replace “Milking jelly”.

3.2
food grade
material made of substances which are safe and suitable for their intended use and which will not alter the quality, safety or organoleptic properties of the food product

4 Requirements

4.1 General requirements

4.1.1 Milking jelly shall be a soft mass, unctuous to touch and shall retain these characters on storage.

4.1.2 All ingredients used shall be of food grade and shall not have any effect on the integrity of milk.

4.1.3 Milking jelly shall maintain lubrication throughout the milking process without drying or clumping**.**

4.1.4 Milking jelly shall be non-perfumed**.**

4.2 Specific requirements

Milking jelly shall comply with the specific requirements given in Table 1 when tested in accordance with the test methods specified therein.

Table 1 – Specific requirements for milking jelly

S/No	Characteristic	Requirement	Test method
i.	Moisture, %, max.	0.2	ISO 8534
ii.	Melting point; °C	36 – 56	Annex A
iii.	Saponifiable matter	NIL	Annex B
iv.	Organic acids	1	Annex C
v.	Sulfur and sulfides	To pass the test	Annex D
vi.	Iodine value (Wijs), max	1.5	Annex E
vii.	Cone Penetrometer at 25 °C, (1/10 mm)	160 -250	US ISO 2137

4.3 Microbiological requirements

Milking jelly shall comply with the limits for microbiological limits given in Table 2 when tested in accordance with the test methods specified therein.

Table 2 — Microbiological limits for milking jelly

S/No	Microorganism	Requirement	Test method
i.	Total plate count, CFU/g	<150	US ISO 21149
ii.	*E.coli*	Not to be detected	ISO 21150
iii.	*Yeast and moulds , CFU/g, max*	10	ISO 21527
iv.	*Staphylococcus Aureus*	Not detectable in 1 g of product	US ISO 22718

5 Heavy metal limit

Milking jelly shall comply with the limits for heavy metal contaminant given in Table 3 when tested in accordance with the test methods specified therein.

Table 3 — Heavy metal limits for milking jelly

Microorganism	Requirement	Test method
Heavy metal (as Pb) mg/kg, max.	0.02	EAS 847-16

6 Packaging

Milking jelly shall be packaged in suitable well-sealed containers that shall protect the contents and shall not cause any contamination or react with the product.

7 Labelling

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

a) product name as “Milking jelly” or “Milking salve”, or “Udder balm”;

b) name and physical address of the manufacturer;

c) net content;

d) list of ingredients;

e) batch number;

f) date of manufacture;

g) expiry date;

h) country of origin; and

i) instructions for use and storage.

8 Sampling

Sampling shall be done in accordance with Annex G.

Annex A
(normative)

Determination of melting point

A.1 Melt a quantity of the sample slowly while stirring until it reaches a temperature of 90 °C - 92 °C. Remove the source of heat and allow the molten sample to cool to a temperature of 8 °C - 10 °C above the expected melting point. Chill the bulb of a thermometer (range: 1 °C - 100 °C) to 5 °C, wipe it dry and while it is still cold, dip it into molten sample so that approximately half of the bulb is “submerged". Withdraw it immediately and hold it vertically away from heat until the wax surface dulls, then dip it for 5 min into a water bath having a temperature not higher than 16 °C.

A.2 Fix the thermometer prepared in A.1 securely in a test tube so that its lowest point is about 15 mm above the bottom of the test tube. Suspend the test tube in a water bath adjusted to 16 °C, and raise the temperature of the bath at a rate of 1 °C/min and note the temperature at which the first drop of the melted sample leaves the thermometer. Repeat the determination twice on a freshly melted portion of the sample. If the variation in three determinations is less than 1 °C, take the average of three as the melting point. If the variation in the three determinations is more than 1 °C, make two additional determinations and take the average of the five.

Annex B
(normative)

Determination of saponifiable matter

B.1 Reagents

B.1.1 **Methyl ethyl ketone**, analytical grade, stored in amber coloured bottle

B.1.2 **Standard alcoholic potassium hydroxide solution**, 0.5 mol/L standardized before use

B.1.3 **Petroleum ether**, boiling range 80 °C - 100 °C

B.1.4 **Standard hydrochloric acid**, 0.5 mol/L accurately standardized

B.1.5 **Phenolphthalein indicator solution**, 1 % solution in 95 % rectified spirit

B.2 Procedure

B.2.1 Accurately weigh in flask about 5 g of the sample and add 25 ml ± 1 ml of methyl ethyl ketone, followed by 25 ml standard alcoholic potassium hydroxide solution from a burette. Connect the flask to a condenser and heat for half an hour after refluxing begins. Disconnect the condenser, add 50 ml of petroleum ether and titrate the solution while hot (without heating) with standard hydrochloric acid, using three drops of phenolphthalein indicator. When the indicator colour is discharged, add three drops more of the indicator. If this addition restores the colour, continue the titration. Proceed in this manner until the end point is reached when the indicator colour is discarded and does not immediately reappear upon the addition of three more drops of indicator.

B.2.2 Run a blank under identical conditions.

B.2.3 The sample shall be taken to have passed the requirement specified in Table 1 if the blank reading does not differ from the sample reading by more than 0.1 ml.

Annex C
(normative)

Determination of organic acids

C.1 Reagents

C.1.1 **Dilute rectified spirit**, prepared by diluting one volume of 95 % rectified spirit with two volumes of water, and neutralized to phenolphthalein indicator

C.1.2 **Phenolphthalein indicator**, same as in B.1.5

C.1.3 **Standard sodium hydroxide solution**, exactly 0.1 mol/L

C.2 Procedure

C.2.1 Add 100 ml of dilute rectified spirit to 20 g of the sample, agitate thoroughly, and heat to boiling. Add 1 ml of phenolphthalein indicator and titrate rapidly with standard sodium hydroxide solution with vigorous agitation to a sharp pink endpoint in the alcohol water layer.

C.2.2 The material shall be taken to have passed the test if not more than 1 ml of standard sodium hydroxide solution is required for the titration.

Annex D
(normative)

Determination of sulphur and sulphides

D.1 Reagents

Copper strips, 1 cm in width, and freshly polished

D.2 Procedure

D.2.1 Melt in a beaker about 100 g of the sample and keep on a water bath at a temperature of 95 °C. Then place a strip of copper in the melted sample so that it is partially immersed in it and allow to remain for 10 min.

D.2.2 The material shall be taken to have passed the test if the copper strip used in the test shows no tarnishing when compared with another freshly polished copper strip.

Annex E
(normative)

Determination of iodine value

E.1 Apparatus

Engraved stem thermometer, calibrated between 10 °C and 65 °C in 0.1-degree intervals and with the 0 °C point marked on the stem as recommended. The thermometer shall have an auxiliary reservoir at the upper end, and length of about 370 mm and diameter of about 6 mm.

E.2 Reagents

E.2.1 Carbon tetrachloride or chloroform

E.2.2 Acetic acid, glacial, 99 %, having a melting point of 14.8 °C and free from reducing impurities. Determine the melting point of the acetic acid in accordance with E.2.2.1 and test it for reducing impurities in accordance with E.2.2.2.

E.2.2.1 For the melting point determination, take a 15-cm long test tube and fill it to about two thirds with the acetic acid. Insert into the acid a thermometer complying with the requirements specified in F.1 through a cork stopper fitting the test tube. The amount of acid should be at least double the quantity required to cover the bulb of the thermometer when the bottom of the latter is 12 mm from the bottom of the test tube. Suspend this tube within a larger test tube through a cork. Cool the acid by immersing the assembly in ice water until the temperature is 10 °C, then withdraw the assembly from the ice water and stir the acid rather vigorously for a few moments, thus causing the super-cooled liquid to crystallize partially and give a mixture of liquid and solid acid. Take thermometer readings every 15 s and consider the temperature at which the reading remains constant for at least 2 min as the true melting point.

E.2.2.2 For the determination of reducing impurities (potassium permanganate test), dilute 2 ml of acetic acid with 10 ml of water and add 0.1 ml of 0.5 mol/L potassium permanganate solution and maintain at 27 °C ± 2 °C. The test shall be taken as having been satisfied if the pink colour is not discharged at the end of 2 h.

E.2.3 Potassium dichromate, finely ground

E.2.4 Starch solution, mix 5 g of starch and 0.01 g of mercuric iodide with 30 ml of cold water and slowly pour it while stirring into 1 L of boiling water. Boil for 3 min. Allow the solution to cool and decant off the supernatant clear liquid.

E.2.5 Standard sodium thiosulphate solution, 0.2 mol/L

E.2.6 Chlorine gas, dry

E.2.7 Iodine trichloride

E.2.8 Wijs iodine monochloride solution, prepare this solution by one of the following methods, and store in a glass stoppered bottle in a cool place, protected from light and sealed with paraffin until taken for use:

a) dissolve 3 g of re-sublimed iodine in 1 L of acetic acid, using gentle heat if necessary, and determine the length by titration with standard sodium thiosulphate solution. Set aside 50 ml - 100 ml of solution and introduce washed and dried chlorine gas into the remainder until the characteristic colour change occurs and the halogen content is nearly doubled as ascertained again by titration. If the halogen content has been more than doubled, reduce it by adding the requisite quantity of the iodine-acetic acid solution. A slightly excess of iodine does not harm, but avoid an excess of chlorine.

Example, if the titration of 20 ml of original iodine-acetic acid solution requires 22 ml of standard sodium thiosulphate solution, then 20 ml of the finished Wijs solution should require between 43 ml and 44 ml (and not more than 44 ml) of the same sodium thiosulphate.

b) as an alternative method of preparing Wijs solution, dissolve 8 g of iodine trichloride in approximately 450 ml of acetic acid. Dissolve separately 9 g of iodine in 450 ml, of acetic acid using heat if necessary. Add gradually the iodine solution to the iodine trichloride solution until the colour has changed to reddish brown. Add 50 ml more of iodine solution and dilute the mixture with acetic acid till 10 ml of the mixture are equivalent to 20 ml standard sodium thiosulphate solution when the halogen content is estimated by titration in the presence of an excess to potassium iodide and water. Heat the solution at 100 °C for 20 min and cool. Prevent access of water vapour in preparing the solution.

E.3 Procedure

E.3.1 Melt the material and filter through the filter paper to remove any impurities and the last trace of moisture. Make sure that the glass apparatus used is absolutely clean and dry. Weigh accurately by difference, about 10 g of the sample, into a clean, dry 500-ml glass stoppered bottle to which 25 ml of carbon tetrachloride or chloroform have been added, and agitate to dissolve the contents. Add 25 ml of Wijs solution (the quantity of Wijs solution added is 50 % - 60 % more than the quantity required).

E.3.2 Replace the glass stopper after wetting with potassium iodide solution, swirl for intimate mixing, and allow to stand in the dark for 45 min. Carry out a blank test simultaneously under similar experimental conditions. After standing, add 15 ml of potassium iodide solution and 100 ml of water, and titrate the liberated iodine with standard sodium thiosulphate solution, swirling the contents of the bottle continuously to avoid any local excess, until the colour of the solution is straw yellow. Add 0.5 ml of starch solution and continue the titration until the blue colour disappears.

E.4 Calculation

The Iodine value, expressed in Wijs, shall be calculated using the formula below:

$$\frac{12.69\,(V_1 - V_2)M}{m}$$

where

*V*1 is the volume, in millilitres, of standard sodium thiosulphate, required for the blank;

*V*2 is the volume, in millilitres, of standard sodium thiosulphate solution, required for the material;

M is the molarity, of standard sodium thiosulphate; and

M is the mass, in grams, of the material taken for the test.

Bibliography

[1] CDC 3 (12) DTZS: 2021, Milking jelly — Specification

[2] EAS 126: 2022, Petroleum jelly for cosmetic use — Specification

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

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