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Deodorants and antiperspirants — Specification

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Foreword

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

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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 5, *Chemicals and Environment* Subcommittee UNBS/TC5/SC1, I*ndustrial and public health chemicals*

Deodorants and antiperspirants — Specification

1 Scope

This Draft Uganda Standard prescribes the requirements, sampling and test methods for deodorants and antiperspirants.

This standard does not apply to the medicated deodorants and antiperspirants, which claim therapeutic value.

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.

FDEAS 847-16, *Oils for cosmetic industry — Methods of test — Part 16: Determination of Heavy metal Content*

FDEAS 847-17, *Oils for cosmetic industry — Methods of test — Part 17: Physio-chemical tests*

FDUS ISO 24153, *Random sampling and randomisation procedures*

US EAS 346, *Labelling of cosmetics — General requirements*

US EAS 377 (all parts), *Cosmetics and cosmetic products*

US ISO 7010 — *Graphical symbols safety colours and safety signs — Registered safety*

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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

3.1
antiperspirant
preparation for prevention of sweating.

3.2
body odour
the armpit (or axillary) odour which tends to have a characteristic smell.

3.3
cosmetic
any article intended to be used by means of rubbing, pouring, steaming, sprinkling, spraying on or otherwise applied to the human body or any part thereof for cleansing, beautifying, promoting attractiveness or altering the appearance and includes any article intended for use as component of a cosmetic, such article exclude

articles intended beside the above purposes for use in the diagnosis, treatment or prevention of diseases and those intended to affect the structure or any function of the body.

3.4
deodorant
substance applied to the body to mask the smell of sweat.

3.5
roll-ball
spherically shaped object, with the capacity to roll in all directions. It is put at the opening of a roll-on container and serves the role of closing the container as well as dispensing the contents, when rolled on the skin.

3.6
roll-on deodorant and antiperspirant
cosmetic preparation with the effect of deodorizing and providing antiperspirant properties to the body of the user. It is packed in a container fitted with a roll-ball.

4 Requirements

4.1 General requirements

4.1.1 The preparation shall be of uniform colour and shall be free from visible impurities.

4.1.2 The final product shall not be harmful to the user under normal use.

4.13 Deodorants and antiperspirants packed in aerosol containers shall in addition be tested as prescribed in table 3.

4.1.4 All ingredients used including dyes, pigments and colour shall conform to all parts of US EAS 377.

4.1.5 The deodorant and antiperspirant shall contain acceptable amounts of the ingredients necessary to effect the intended end use performance as stipulated on the label.

4.2 Quality Requirements

The deodorant and antiperspirant shall also comply with the requirements given in Table 1 when tested in accordance with the methods prescribed therein.

Table 1 — Requirements for deodorants and antiperspirants

Characteristics	Requirements	Test method
Stability of smell	To pass test	Annex A
pH neat[a]	3 - 7	FDEAS 847-17
Non-volatile matter, percentage m/m, min.[b]	10.0	Annex B
[a] and [b] This test does not apply to stick products.		

4.3 Heavy metals

The deodorant and antiperspirant shall comply with the limits for heavy metal contaminants in accordance with Table 2

Table 2 — Limits for heavy metal contaminants.

Characteristic	REQUIREMENT	TEST METHOD
Lead (Pb), ppm, max	20.0	FDEAS 847-16
Arsenic (As), ppm, max.	2.0	
Mercury (Hg), ppm, max	2.0	
[c]Total amount of Lead, Arsenic and Mercury, ppm, max.	20.0	

[c]The heavy metal including Lead, Arsenic and Mercury shall be a result of contamination during processing and not deliberate addition as an ingredient.

4.4 Specific requirements

The deodorants and antiperspirants packed in aerosol containers shall be test in accordance with table 3

Table 3 — specific requirements for aerosol containers

Characteristic	Requirement	Test method
CFCs	Absent	Annex C
Delivery rate g/s, min,	0.01	Annex D
Net weight delivery m/m, %, min	95	Annex E
General leakage	To pass test	Annex F

5 Packaging

The deodorant and antiperspirant shall be packaged as roll-ons, aerosols, squeeze, stick products and in any other suitable containers that shall protect the contents and shall not cause any contamination or react with the product.

5.1 Roll-ball construction

If the container is fitted with a roll ball:

5.1.1 The roll ball shall be made of plastic material.

5.1.2 The roll ball shall be fitting on the container such that on holding the container upside down the contents shall not pour out.

5.1.3 The roll ball shall be free rolling, leaving a thin layer of the contents on the skin during dispensation.

5.2 Aerosol containers

Filled aerosol containers shall be appropriately classified in terms of flame propagation characteristics of their contents when tested in accordance with annex G;

a) Highly flammable — if the average length of the flame is greater than 0.45 m or if the flame burns back to the actuator, or continues to burn when the test flame is extinguished.

b) Flammable — if the average length of the flame is between 0.20 m and 0.45 m

c) Non-flammable — if the product does not burn in the manner described above (a) and (b)

6 Labelling

6.1 In addition to the labelling requirements outlined in US EAS 346, the package shall be legibly marked with the following information:

a) manufacturer's name and physical address;

b) product name “deodorant” or “antiperspirant”;

c) net content of the material when packed;

d) instructions for use;

e) country of origin;

f) month and year of manufacture and expiry;

g) warning/precuations

6.2 In addition, the following warning shall be labelled on all products containing Aluminium zirconium chloride hydroxide complexes and/or the Aluminium zirconium chloride hydroxide glycine complexes:

Caution:‘Do not apply to irritated or damaged skin.’

6.3 The product shall also be labelled with appropriate safety symbols as specified in US ISO 7010.

7 Sampling

Representative unopened samples shall be drawn for test from the market or anywhere else in accordance with DUS ISO 24153. The samples shall be declared as conforming to the specification if they satisfy all the specified requirements.

Annex A
(normative)

Stability of smell

A.1 Apparatus

A.1.1 Porcelain cup

A.1.2 Pincers

A.1.3 Ten pieces of bleached gauze of dimension 5 cm x 10 cm

A.1.4 Thermometer

A.1.5 Hygrometer

A.2 Procedure

Put some pieces of bleached gauze which have been pre-washed in hot water without soap and dried into a porcelain cup and pour 1.5 ml of the sample into this cup. After the gauze gets soaked, take it out with the help of pincers. Without squeezing it, dry it in a premise having temperature 37 °C ± 2 °C and humidity of 65 % ± 5 % for 12 h.

A.3 Result

The product shall be taken to have passed the test if, after 12 h, the smell of the sample can clearly be picked up.

Annex B
(normative)

Non-volatile matter

B.1 Apparatus

B.1.1 Moisture dish

B.1.2 Oven

B.1.3 Analytical balance

B.1.4 Desiccator

B.2 Procedure

Weigh accurately 1g ± 0.2 g of the sample in the dish and place it in an oven at 105 °C ± 2°C for 1 h. Cool to room temperature in a desiccator and weigh the dish. Repeat the process to bring it to constant mass.

B.3 Calculation

$$\text{Non-volatile matter per cent by mass} = \frac{M_2 - M_1}{M} \times 100$$

Where,

M = mass, in grams, of the material taken,

M_1 = mass, in grams, of the dry and empty dish, and

M_2 = mass, in grams, of the dish and dried material.

Annex C
(normative)

Determination of propellant composition

C1 procedure

C.2.1 The analysis of the propellant mixture in most aerosol is carried out conveniently by gas chromatography. For Sampling, a hypodermic needle is fitted to the valve of the aerosol can and approximately 0.5 g of the propellant is injected into the heavy duty centrifuge tube closed with serum cap, containing about 8 ml of benzene. After mixing, 5µl samples are taken out from this tube with a microlitre syringe and injected into the gas chromatograph.

C.2.2 Two 4572 mm × 6.35 mm OD columns operated at 40 °C are recommended for the analysis containing 20 percent weight hexadecane and diethylhexyl sebacate respectively on silanized chromosorb W60/S0 mesh.

The first column should be used mainly for initial screening and the second column for the confirmation and determination of the identified propellants.

Table C1 lists the relative retention data of the most widely used propellant together with some other fluorinate hydrocarbons and benzene used as the solvent IN the two columns.

Table C1 — Relative retention data of propellants

Chemical name	Stationary phase diethylhexyl sebacate	Stationary phase hexadecane
Octafluorocylobutane	0.214	0.122
1-chloro-1,2,2 trifluoroethylene	0.268	0.196
Propane	0.275	0.22
1,2-difluoroethane	0.289	0.141
Dichlorodifluoromethane	0.296	0.220
1,2-dichloro1,1.2,2-tetrafluoromethane	0.345	0.290
Isobutane	0.366	0.378
Monochlorodiflouoromethane	0.368	0.152
1-Chloro-1,1-difluoroethane	0.402	0.236
n- butane	0.449	0.527
Vinylchloride	0.529	0.353
Trichlorofluoroethane	1.000	1.000
1,1,2-trichloro-1,2,2-tetrafluoroethane	1.254	1.342
Dichloromonofluoroethane	1.354	0.515
1,2-dibromo-1,1,2,2 tetrafluoroethane	1.634	1.363
Methylene Chloride	2.565	1.070
Benzene	6.786	5.661

C.2 Results

The sample shall be considered as having failed the test if it contains any of the above CFCs

ANNEX D
(normative)

Determination Delivery Rate of the dispenser

D.1 Material and apparatus

The following material and apparatus shall be used in this test

D.1.1 Any suitable timing device

D.1.2 Balance

Having accuracy to 0.01 g and with a capacity greater than 500 g.

D.1.3 pair of gloves

Made of cloth or fabric or towel for handling dispensers during test.

D.1.4 pair of tongs

For removing dispensers from water bath.

D.1.5 Water bath

Set at 26 °C ± 0.3 °C, thermostatically controlled.

D.2 Procedure

D.2.1 Hold a dispenser upright, spray for two seconds to fill the eduction tube. Then weigh the dispenser

D.2.2 Submerge the dispenser into the water bath for 15 minutes using tongs, remove the dispenser from the bath and immediately dry the container with a towel Spray the dispenser in one continuous burst for 10 seconds. Re-weigh the dispenser.

D.2.3 Repeat the procedure and take an average of three tests. The difference between the maximum and minimum delivery rates shall not exceed 0.2 g per second

D.3 Calculation

Calculate the delivery rate according to the following formula;

$$\text{Delivery rate (in g per second)} = \frac{M_1 - M_2}{N}$$

Where;

M_1 = initial weight of the dispenser in grams

M_2 = final weight of the dispenser in grams

N = time in seconds

ANNEX E
(normative)

Net weight delivery

Procedure

E.1 For the determination of the net weight delivery, a random sample of at least three packages is selected. After the removal of any dust cover or caps not required for dispensing the product, the gross weight of each package is determined and after shaking for 15 seconds, the content of the lightest container is drained by holding the valve wide open. Now the exhausted container is weighed .The result is called wet – tare weight and is equal to the weight of the container plus any product remaining after draining.

E.2 Consequently, the regeneration allowance is determined and subtracted from the wet-tare weight to obtain the corrected wet-tare weight. The regeneration allowance is defined as the difference between the weight of the product which would be delivered through normal usage and the weight of the product delivered by the present accelerated procedure .It is calculated by multiplying the label weight of the container by 0.02 g and rounding the result to the next lowest gram.

E.3 By subtracting the corrected tare weight from the gross weight, the adjusted net weight of the package is obtained. If this is greater than 95 percent of the label weight the lot is assumed to be satisfactory. However, if it is less than 95 percent of the label weight, the lot is rejected.

ANNEX F
(normative)

Testing of filled aerosol containers

F.1 Procedure

F.1.1 All filled aerosol containers shall be tested by immersion in a water bath set at 55 °C

F.1.2 The container shall be such that the pressure generated within the immersed container reaches not less than 90 percent of the pressure generated within the containers at equilibrium at 55 °C.

F.2 Interpretation of results

Any filled aerosol container that shall leak, get distorted or burst as a result of this test shall be considered to have failed the test and shall be discarded.

ANNEX G
(normative)

Flame propagation

G.1 Principle

The filled aerosol container is sprayed as a test flame under controlled conditions and length of the burning spry cone is measured.

G.2 Apparatus

G.1.1 In its simplest form, the apparatus consists of a base marked at 0.15 m intervals, an adjustable stand to carry the aerosol container which may be raised or lowered to accommodate differences in container height, a means of measuring the burning spray cone (usually a one metre fuel placed horizontally at the same level as the top third of the flame, the hottest part) a means of igniting the spray cone in the form of a test flame 0.05 m ± 0.005 m in height (usually a candle flame is used).

G.1.2 Water bath maintained at 20 °C .This equipment shall be used to bring the aerosol container and its contents to equilibrium at 20 °C (Heat the cans to 20 °C in the water bath)

G.3 Procedure

G.3.1 place the aerosol container on the stand. Depress the actuator and adjust the height of the stand so that the spray cone will pass through the upper third test flame (hottest part).

G.3.2 Bring the aerosol container and its content to the equilibrium temperature of 20 °C. Place the container on the stand so that the point where the spray emerges is 0.15 m from the test flame. Then light the test flame and depress the actuator for 15 seconds to 20 seconds. Record the total length of the burning spray cone and specify whether or not it burns back to the actuator.

G.3.3 Extinguish the test flame and record whether the spray cone continues to burn while the actuator is depressed.

G.3.4 Repeat each test twice and record the flame length as the average of the three tests.

Bibliography

[1] 76/768/EEC, *The European Economic Community Cosmetics Directive*

[2] KS 1669:2001 —*Specification for cosmetic and air freshener aerosols*

[3] KS 1764:2012 — *Specification for deodorants and antiperspirants*

[4] TZS 919: 2015, *Deodorants and antiperspirants — Specification*

Certification marking

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ICS 71.100.70

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