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DRAFT EAST AFRICAN STANDARD

Deodorants and antiperspirants — Specification

EAST AFRICAN COMMUNITY

Second Edition 2024

Copyright notice

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Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the Principles and procedures for development of East African Standards.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

The committee responsible for this document is Technical Committee EASC/TC 071, *Cosmetics and related products*

Attention is drawn to the possibility that some of the elements of this document may be subject of patent rights. EAC shall not be held responsible for identifying any or all such patent rights.

This second edition cancels and replaces the first edition (EAS 960:2020), which has been technically revised.

Introduction

Use of deodorants and antiperspirants is on the increase. Antiperspirants are used to prevent sweating whilst deodorants are used to mask body odour. The safety of the consumer and quality of the product need to be taken into consideration by laying down the requirements for the product.

Deodorants and antiperspirants are packaged as roll-ons, aerosols, squeeze, stick products and any other permitted packaging.

Deodorants and antiperspirants — Specification

1 Scope

This Draft East African Standard specifies the requirements, sampling and test methods for deodorants and antiperspirants.

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.

EAS 346, *Labelling of cosmetic products*

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

EAS 847-16, *Cosmetics — Analytical methods — Part 16: Determination of heavy metal content*

EAS 847-17, *Cosmetics — Analytical methods — Part 17: Physio-chemical tests*

ISO 7010, *Graphical symbols — Safety colours and safety signs — Registered safety signs*

ISO 22716, *Cosmetics — Good Manufacturing Practices (GMP) — Guidelines on Good Manufacturing Practices*

ISO 24153, *Random sampling and randomisation procedures*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EAS 846 and the following apply.

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

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

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

3.1
antiperspirant
preparation for preventing the flow of sweat

3.2
deodorant
substance applied to the body to mask the smell of perspiration. May be packed as sticks, pads, dabber units, aerosols, roll-ons, pump sprays, squeeze bottles and creams

3.3
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.

4 Requirements

4.1 Ingredients

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

4.2 General requirements

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

4.2.2 Deodorants and antiperspirants shall not be harmful to the user when used as intended by the manufacturer.

4.2.3 Deodorants and antiperspirants shall be produced, prepared and handled in accordance with ISO 22716.

4.3 Specific requirements

4.3.1 Deodorants and antiperspirants shall also comply with the requirements given in Table 1 when tested in accordance with the test methods specified therein.

Table 1 — Specific requirements for deodorants and antiperspirants

S/NO	Characteristic		Requirement	Test method
i.	Stability of smell		To pass test	Annex A
ii.	pH neat[a]		3 – 7	EAS 847-17
iii.	Non-volatile matter, % m/m, min.[b]	Aerosols	1.0	Annex B
		Non-aerosols	5.0	
a, b These tests do not apply to stick products.				

4.3.2 Deodorants and antiperspirants packed in aerosol containers shall in addition comply with the requirements given in Table 2 when tested in accordance with the test methods specified therein.

Table 2 — Specific requirements for deodorants and antiperspirants packed in aerosol containers

S/NO	Characteristic	Requirement	Test method
i.	Delivery rate g/s, min.	0.01	Annex C
ii.	Chlorofluorocarbons (CFCs)	Absent	Annex D
iii.	Net weight delivery m/m, %, min.	95	Annex E
iv.	Spray test	To pass test	Annex F
v.	Valve leakage, g/year, max.	5	Annex G
vi.	General leakage	To pass test	Annex H

5 Heavy metal contaminants

Deodorants and antiperspirants shall comply with the limits for heavy metal contaminants given in Table 3 when tested in accordance with the test methods specified therein.

Table 3 — Heavy metal limits for deodorants and antiperspirants

S/NO	Heavy metal	Maximum limit [a] mg/kg	Test method
i.	Lead (as Pb)	10.0	EAS 847-16
ii.	Arsenic (as As)	2.0	
iii.	Mercury (as Hg)	1.0	
a The total amount of heavy metals as lead, mercury and arsenic, in combination in the finished product shall not exceed 10 mg/kg.			

6 Microbiological limits

Deodorants and antiperspirants shall comply with the microbiological limits given in Table 4 when tested in accordance with the test methods specified therein.

Table 4 — Microbiological limits for deodorants and antiperspirants

S/NO	Microorganism	Limit	Test method
i.	Total viable count for aerobic mesophyllic microorganisms, CFU/g or CFU/ml, max.	1 000	ISO 21149
ii.	*Pseudomonas aeruginosa*	Not detectable in 1 ml or 1 g of cosmetic product	ISO 22717
iii.	*Staphylococcus aureus*		ISO 22718
iv.	*Candida albicans*		ISO 18416

7 Packaging

7.1 General

Deodorants and antiperspirants 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.

7.2 Roll-ball construction

If the container is fitted with a roll ball, the roll ball shall be

a) made of plastic material,

b) fitting on the container such that on holding the container upside down the contents shall not pour out, and

c) free rolling, leaving a thin layer of the contents on the skin during dispensation.

8 Labelling

8.1 In addition to the labelling requirements given in EAS 346, the package shall be legibly and indelibly marked with the product name as “Deodorant” or “Antiperspirant”;

8.2 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.’

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

9 Sampling

Sampling shall be done in accordance with ISO 24153.

Annex A
(normative)

Determination of stability of smell

A.1 Apparatus

A.1.1 Porcelain cup

A.1.2 Pincers

A.1.3 Bleached gauze, ten pieces 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)

Determination of 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

Chill the sample to 2 ºC ±1 ºC for 30 minutes. Weigh accurately 1 g ± 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

The non-volatile matter content, expressed as percent by mass, shall be calculated using the formula below:

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

where

M_2 is the mass, in grams, of the dish and dried material;

M_1 is the mass, in grams, of the dry and empty dish; and

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

Annex C
(normative)

Determination of delivery rate of dispenser

C.1 Material and apparatus

C.1.1 **Any suitable timing device**

C.1.2 **Analytical balance** with an accuracy to 0.01 g and capacity greater than 500 g

C.1.3 **Pair of gloves** made of cloth or fabric or towel for handling dispensers during test

C.1.4 **Pair of tongs** for removing dispensers from water bath

C.1.5 **Water bath** set at 26 °C ± 0.3 °C, thermostatically controlled

C.2 Procedure

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

C.2.2 Submerge the dispenser into the water bath for 15 min 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 s. Reweigh the dispenser.

C.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/s.

C.3 Calculation

The delivery rate, expressed in grams per second, shall be calculated using the formula below:

$$= \frac{M_1 - M_2}{N}$$

where

M_1 is the initial weight, in grams, of the dispenser;

M_2 is the final weight, in grams, of the dispenser; and

N is the time in seconds.

Annex D
(normative)

Determination of propellant composition

D.1 Procedure

D.1.1 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 a serum cap, containing about 8 ml of benzene. After mixing, 5-µl samples are taken out from this tube with a microliter syringe and injected into the gas chromatograph.

D.1.2 Two 4 572 mm × 76.2 mm OD columns operated at 40 °C are recommended for the analysis containing 20 % 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 D.1 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 D.1 — 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-dichloro-1,1.2,2-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

D.2 Results

The sample shall be considered as having failed the test if it contains any of the CFCs in Table D.1.

Annex E
(normative)

Net weight delivery

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 s, the content of the lightest container is drained by holding the valve wide open. 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 % of the label weight the lot is assumed to be satisfactory. However, if it is less than 95 % of the label weight, the lot is rejected.

Annex F
(normative)

Spray test

Hand-shake the sample container for 15 s. Spray for 10 s. The sample shall be deemed to have passed the test if defects such as “streamers” (solid or nearly solid stream), “droppers” (dripping valve) or no spraying are absent.

Annex G
(normative)

Determination of valve leakage

Select three aerosol containers, and record the date and time to the nearest half-hour. Weigh each container to the nearest milligram, and record the weight in milligram of each, as W1. Place the containers in an upright position and retain at room temperature for not less than three days. Weigh each container again, recording the weight in milligram of each, as W2 and recording the date and time to the nearest half hour. Determine the time, T, in hours, during which the containers were under test.

Calculate the leakage rate, in milligrams per year, of each container taken using the formula:

$$(365)\ (24/T)\ (W_1 - W_2)$$

Where plastic-coated glass aerosol containers are tested, dry the containers in a desiccator for 18 h, and set upright in a constant-humidity environment for 24 h prior to determining the initial weight as indicated above. Perform the test under the same humidity conditions. Empty the contents of each container tested by utilizing any safe technique (for example, chill to reduce pressure). Empty the residual contents by first rinsing with suitable solvents, then with a few portions of methanol. Retain the container, the valve and all associated parts as a unit, heat as W_3 and determine the net fill weight (W_1 - W_3) for each container tested.

If the average net fill weight has been determined previously, this value may be used as the net fill weight.

Annex H
(normative)

Testing of filled aerosol containers

H.1 Procedure

H.1.1 All filled aerosol containers shall be tested by immersion in a water bath set at 55 °C for 3 min.

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

H.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.

Bibliography

EAS 960:2020, *Deodorants and antiperspirants — Specification*