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FINAL DRAFT EAST AFRICAN STANDARD

Deodorants and antiperspirants — Specification

EAST AFRICAN COMMUNITY

Second Edition 2025

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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.*

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

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.

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, squeezes, stick products and any other suitable packaging.

Deodorants and antiperspirants — Specification

1 Scope

This Final Draft East African Standard specifies 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 cosmetics — Requirements*

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

EAS 846, *Glossary of terms relating to the cosmetic industry*

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

EAS 847-17, *Cosmetics — Analytical methods — Part 17: Determination of pH*

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

ISO 18416, *Cosmetics — Microbiology — Detection of Candida albicans*

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

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

ISO 22717, *Cosmetics — Microbiology — Detection of Pseudomonas aeruginosa*

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

ISO 24153, *Random sampling and randomization procedures*

Globally Harmonized System of Classification and Labelling of Chemicals

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 intended for preventing the flow of sweat

3.2
deodorant
substance applied to the body to mask the smell of perspiration

Note 1 to entry: Deodorants may be packaged 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 in the manufacture of deodorants and antiperspirants including dyes, pigments and colour shall comply with all parts of EAS 377.

4.2 General requirements

4.2.1 Deodorants and antiperspirants 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 comply with the specific requirements given in Table 1 when tested in accordance with the test methods specified therein.

Table 1 — Specific requirements for deodorants and antiperspirants

S/N	Characteristic	Requirement	Test method
i.	Stability of smell	To pass test	Annex A
ii.	pH neat[a]	3 – 7	EAS 847-17
[a] This test does not apply to stick products.			

4.3.2 In addition to the requirements given in Table 1, deodorants and antiperspirants packaged in aerosol containers shall 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 packaged in aerosol containers

S/N	Characteristic	Requirement	Test method
i.	Delivery rate g/s, min.	0.01	Annex B
ii.	Chlorofluorocarbons (CFCs)	Absent	Annex C
iii.	Net weight delivery, % m/m, min.	95	Annex D
iv.	Spray test	To pass test	Annex E
v.	Valve leakage, g/year, max.	5	Annex F
vi.	General leakage	To pass test	Annex G

4.4 Heavy metal contaminants

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

Table 3 — Heavy metal limits for deodorants and antiperspirants

S/N	Heavy metal	Maximum limit[a] mg/kg	Test method
i.	Lead	10.0	EAS 847-16
ii.	Arsenic	2.0	
iii.	Mercury	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.

4.5 Microbiological requirements

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

Table 4 — Microbiological requirements for deodorants and antiperspirants

S/N	Microorganism	Requirement	Test method
i.	Total viable count for aerobic mesophyllic microorganisms, CFU/g or CFU/ml, max.	1 000	ISO 21149
ii.	*Pseudomonas aeruginosa,* per ml or g	Not detected	ISO 22717
iii.	*Staphylococcus aureus,* per ml or g	Not detected	ISO 22718
iv.	*Candida albicans*, per ml or g	Not detected	ISO 18416

5 Packaging

5.1 General

Deodorants and antiperspirants shall be packaged as roll-ons, aerosols, squeezes, stick products or in any other suitable container that shall protect the contents and shall not cause any contamination or react with the product.

5.2 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.

6 Labelling

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

6.2 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 Deodorants and antiperspirants shall be labelled with appropriate safety symbols as specified in ISO 7010 and/or the Globally Harmonized System of Classification and Labelling of Chemicals.

7 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. 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 have passed the test if, after 12 h, the smell of the sample can clearly be picked up.

Annex B
(normative)

Determination of delivery rate of dispenser

B.1 Material and apparatus

B.1.1 **Any suitable timing device**

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

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

B.1.4 **Pair of tongs**, for removing dispensers from the water bath

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

B.2 Procedure

B.2.1 Hold a dispenser upright, spray for 2 s to fill the induction tube. Then weigh the dispenser.

B.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.

B.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.

B.3 Calculation

The delivery rate, expressed as 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;

N is the time in seconds.

Annex C
(normative)

Determination of presence of Chlorofluorocarbons (CFCs) propellant composition

C.1 Sampling

Spray the sample directly into an autosampler vial until you obtain approximately 0.5 g of the material. Tightly seal the autosampler vial with the screw cap and allow to equilibrate for 10 min before injection into the gas chromatograph.

C.2 Apparatus and reagents

C.2.1 Gas Chromatography with Flame Ionization Detection (GC-FID) or Gas Chromatography with an Electron Capture Detector (GC-ECD) or Gas Chromatography-Mass Spectrometry (GC-MS)

C.2.2 Autosampler vials, with PTFE lined septa screw caps

C.2.3 Standard, containing propellants and the following chlorofluorocarbons (CFCs):

- Octafluorocylobutane
- 1,2-dichloro-1,1,2,2-tetrafluoromethane
- 1-chloro-1,2,2-trifluoroethylene
- Dichlorodifluoromethane
- Monochlorodiflouoromethane
- Vinyl chloride
- Trichlorofluoroethane
- 1,1,2-trichloro-1,2,2-tetrafluoroethane
- 1,2-difluoroethane
- Dichloromonofluoroethane
- Methylene chloride
- 1,2-dibromo-1,1,2,2-tetrafluoroethane
- Propane
- n-butane
- Isobutane

C.3 Gas chromatograph conditions

C.3.1 The analysis of the propellant mixture in aerosol may be carried out using Gas Chromatography (GC) equipped with either a Flame Ionization Detector (FID), Electron Capture Detector (ECD), or mass spectrometer (MS).

C.3.2 The GC conditions shall be as follows:

C.3.2.1 **Column**, fused silica capillary column (6 % cyanopropyl phenyl, 94 % dimethylpolysiloxane), 60 m, 0.18 mm i.d. 1 µm film thickness. Example of such columns is DB 624 or equivalent

C.3.2.2 **Carrier gas**, helium (for MS) or nitrogen (for FID and ECD)

C.3.2.3 **Flow rate**, 1.2 ml/min, constant flow

C.3.2.4 **Injector temperature**, 200 °C

C.3.2.5 **Injection volume**, 10 µL

C.3.2.6 **Injector mode, split,** with split ratio 1:25

C.3.2.7 **Detector temperature**, FID, 250 °C

C.3.2.8 **Oven temperature**, 35 °C, hold for 3 min. Ramp at 5 °C/min to 110 °C, ramp at 10 °C/min to 200 °C and hold for 3 min.

C.3.2.9 **Transfer line temperature**, 260 °C

C.3.2.10 **Carrier gas**, helium, 50 ml/min

C.3.2.11 **Ion source**, 70 eV at 200 °C

C.3.2.12 **Scan rate**, 29.5 to 200.5 in 0.24 s

C.4 Procedure

C.4.1 Identification of chlorofluorocarbons (CFCs) and propellants

C.4.1.1 Prepare independently 100 mg/l of the individual CFCs and propellants standards in n-Butanol.

C.4.1.2 Once the gas chromatograph has equilibrated, inject the individual standards independently and record the retention times.

C.4.1.3 Check to ensure that there is no co-elution of the CFCs and propellants.

C.4.1.4 Once complete separation has been confirmed, run a mixed standard and ensure that all the components are well separated.

C.4.1.5 In case there is co-elution, adjust the temperature programme accordingly to ensure complete separation of the components.

C.4.1.6 A different column may be considered in case the temperature programme does not address the issue of co-elution.

C.4.2 GC calibration procedure

C.4.2.1 Prepare calibration solutions for the individual standards or mixed standards at the following concentration levels: 5 mg/L, 10 mg/L, 15 mg/L, 20 mg/L, 25 mg/L, 50 mg/L, and 100 mg/L in n-Butanol.

C.4.2.2 Once the GC-FID has equilibrated, run the n-Butanol standard as a blank sample.

C.4.2.3 Run the calibration standards, at least in triplicates, on the GC starting with the lowest concentration to the highest concentration.

C.4.2.4 Run a blank sample (n-Butanol) in between the concentration levels to ensure that there is no cross-contamination.

C.4.2.5 Record the peak areas for each CFC at the different concentration levels and prepare individual calibration curves.

C.4.3 Analysis of sample

C.4.3.1 Spray the sample directly into an autosampler vial until you obtain approximately 0.5 g of the material.

C.4.3.2 Inject the sample directly into the gas chromatograph without dilution.

C.4.3.3 Compare the chromatograms of the sample with that of the standard and determine the presence of any components present in the sample.

C.4.3.4 If any of the CFCs or propellants are positively identified in the sample i.e., by spiking the sample with the suspected CFC or propellant to see if the peak intensity increases, record the peak areas.

C.4.3.5 Use the calibration curve prepared in C.4.2.5 to quantify the CFCs or propellants present, incorporating any dilution factors.

C.5 Calculations and expression of results

C.5.1 The sample shall be considered as having failed the test if the sample contains any of the CFCs and propellants listed in C.2.3.

C.5.2 Report the results in milligrams per litre (mg/l) to the nearest whole number.

C.5.3 The procedure above is for GC-FID and may be applicable while using any other detectors, such as Electron Capture Detector (ECD) and Mass Spectrometry (MS), with applicable detector dependent modifications.

Annex D
(normative)

Determination of net weight delivery

D.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.

D.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.

D.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 E
(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 F
(normative)

Determination of valve leakage

F.1 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 W_1. 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 W_2 and recording the date and time to the nearest half hour. Determine the time, T, in hours, during which the containers were under test.

F.2 Calculate the leakage rate, in milligrams per year, of each container taken, using the formula below:

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

F.3 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 (W_1) as indicated in F.1. 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.

F.4 If the average net fill weight has been determined previously, this value may be used as the net fill weight.

Annex G
(normative)

Testing of filled aerosol containers

G.1 Procedure

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

G.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.

G.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*