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DRAFT EAST AFRICAN TANDARD

Bath salt — Specification

EAST AFRICAN COMMUNITY

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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.

Bath salt — Specification

1 Scope

This Draft East African Standard specifies requirements, sampling and test methods for bath salts.

The standard is applicable to Epsom salts, Dead Sea salts and Himalayan salts.

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

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

EAS 847-1, *Cosmetics — Analytical methods — Part 1: Glossary of terms*

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*

EAS 847-25, *Cosmetics — Analytical methods — Part 25: Determination of fineness*

IS0 2479, *Sodium chloride for industrial use — Determination of matter insoluble in water or in acid and preparation of principal solutions for other determinations*

IS0 2480, *Sodium chloride for industrial use — Determination of sulphate content — Barium sulphate gravimetric method*

ISO 2482, *Sodium chloride for industrial use — Determination of calcium and magnesium contents — EDTA complexometric methods*

ISO 2483, *Sodium chloride for industrial use — Determination of the loss of mass at 110 degrees C*

ISO 15774, *Animal and vegetable fats and oils — Determination of cadmium content by direct graphite furnace atomic absorption spectrometry*

ISO 16212, *Cosmetics — Microbiology — Enumeration of yeast and mould*

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

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

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

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

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

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, EAS 847-1 and the following 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
bath salt
water-soluble crystalline product added to bathwater used for bathing. Bath salts are also known as relief salts or bath crystals.

3.2
Dead Sea salt
mineral salt extracted from the Dead Sea used for soothing, exfoliating, and skin-rejuvenating benefits

3.3
Epsom salt
naturally occurring magnesium sulphate ($MgSO_4 \cdot 7H_2O$) mineral, widely used in baths to soothe muscles, reduce inflammation, and promote relaxation. Epsom salt is also known as magnesium sulphate.

3.4
Himalayan salt/ Himalayan pink salt
mineral-rich rock salt used to exfoliate, detoxify, and nourish the skin.

4 Requirements

4.1 General requirements

4.1.1 Bath salt may be crystalline or granular, flaked or tableted or powdered.

4.1.2 Bath salt shall be soluble in water.

4.1.3 Bath salt shall contain natural salts. Bath salts may contain minerals, fragrances, and essential oils.

4.1.4 All ingredients used in the manufacture of bath salts shall comply with all parts of EAS 377.

4.2 Specific requirements

Bath salt 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 bath salt

S/N	Characteristic		Requirement	Test method
i.	Moisture content, % m/m, max.		5	ISO 2483
ii.	pH (1% aqueous solution)		5 – 9	EAS 847-17
iii.	Sodium chloride as NaCl[a], % m/m, min.	Sodium chloride-based bath salts, Himalayan bath salts and Himalayan pink bath salt	95	Annex A
		Dead sea bath salt	25 – 40	
iv.	Magnesium sulphate[b], %m/m, min.		98	Annex B
v.	Calcium (as Ca), %m/m, max.		6	ISO 2482
vi.	Water-insoluble matter, m/m, max.		0.5	IS0 2479
vii.	Sulphate content[a] (as SO4), %m/m, max.		1	ISO 2480

a not applicable to Epsom salts

b applicable to only Epsom salts

4.3 Heavy metal contaminants

Bath salt shall comply with the heavy metal limits given in Table 2 when tested in accordance with the test methods specified therein.

Table 2 — Heavy metal limits for bath salt

S/N	Heavy metal	Maximum limit[a] mg/kg	Test method
i.	Lead	10	EAS 847-16
ii.	Arsenic	2	
iii.	Mercury	1	
iv.	Cadmium	2	ISO 15774

[a] The total amount of heavy metals as lead, mercury and arsenic, in combination in the finished product, shall not exceed 10 mg/kg.

4.4 Microbiological requirements

Bath salt shall comply with the microbiological requirements given in Table 3 when tested in accordance with the test methods specified therein.

Table 3 — Microbiological requirements for bath salt

S/N	Micro-organism	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
v.	*Escherichia coli,* per ml or g	Not detected	ISO 21150
vi.	Yeast and moulds, CFU/g, max.	100	ISO 16212

6 Packaging

Bath salt 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

In addition to the labelling requirements given in EAS 346, the package shall be legibly and indelibly marked with the following:

a) name of the product as “Bath salt”. Other names such as Epsom salt, Dead Sea salt, Himalayan salt , Himalayan pink salt, bath relief salt and bath crystals may be used to replace “Bath salt”; and

b) warnings such as “For external use only” and “Avoid contact with eyes”.

8 Sampling

Sampling shall be done in accordance with ISO 24153.

Annex A

(normative)

Determination of the chloride content, calculated as sodium chloride

A.1 Apparatus

A.1.1 Analytical balance

A.1.2 Volumetric flasks

A.1.3 Pipettes

A.1.4 Burettes

A.1.5 Conical flasks

A.1.6 Glass stirring rod

A.1.7 Wash bottle

A.1.8 Desiccator

A.2 Reagents

A.2.1 Potassium chromate solution, Dissolve 5 g of potassium chromate (K_2CrO_4) in 100 ml of water.

A.2.2 Standard 0.1 N silver nitrate solution

A.2.2.1 Preparation

Dissolve 17.0 g of silver nitrate ($AgNO_3$) in 1 000 ml of water. Store the solution in the dark.

A.2.2.2 Standardization

A.2.2.2.1 Carry out the standardization in triplicate.

A.2.2.2.2 Weigh out accurately 5.8 g of analytical reagent grade sodium chloride (NaCl) (previously dried at 200 °C ± 50 °C for 2 h and cooled to room temperature in a desiccator) into a 1 L volumetric flask and dissolve it in approximately 200 ml of water.

A.2.2.2.3 Adjust the temperature of this solution to 20 °C and dilute it to 1 000 ml with water at the same temperature.

A.2.2.2.4 Pipette 25 ml of the sodium chloride solution at 20 °C into a 250-ml conical flask, add 1 ml of potassium chromate solution, and titrate with the 0.1 N silver nitrate solution until a faint reddish-brown colour persists after brisk shaking.

A.2.2.2.5 Carry out a blank titration using the same procedure but replacing the 25 ml sodium chloride solution with 25 ml of water.

A.2.2.2.6 Calculate the mean normality (*N*) of the silver nitrate solution from the triplicate determinations using the following formula.

$$\frac{A \times 0.4277}{b - C}$$

where

A is the mass of sodium chloride, in grams, in 1 000 ml solution;

b is the volume of silver nitrate solution, in millilitres, required to titrate 25 ml of sodium chloride solution;

c is the volume of silver nitrate solution, in millilitres, required to titrate the blank.

Note A commercially prepared volumetric solution may be used instead.

A.3 Procedure

A.3.1 Carry out the determination in triplicate on each of the test samples. Pipette 50 ml of the principal solution reserved in accordance with ISO 2479 at 20 °C, into a 250 ml volumetric flask and dilute to 250 ml with water at the same temperature.

A.3.2 Mix well and pipette 25 mL of this solution at 20 °C into a 250-ml conical flask. If the solution is acidic (to litmus), neutralize with sodium bicarbonate solution; if the solution is alkaline, add dilute nitric acid (1:10) drop by drop until the solution is acidic (to litmus) and then neutralize with sodium bicarbonate solution.

A.3.3 Add 1 ml of potassium chromate solution and titrate with the standard 0.1 N silver nitrate solution until a faint reddish-brown colour persists after brisk shaking.

A.4 Calculation

The chloride content as NaCl, on a moisture-free basis (and free-flowing agent-free basis, where relevant), expressed as percent by mass, shall be calculated using the formula below:

$$\frac{a \times N\ 1169}{B}$$

where

a is the volume, in millilitres, of silver nitrate solution used in the titration;

N is the normality of the silver nitrate solution;

B is the mass, in grams, of sample in 1 000 ml principal solution, corrected for moisture content and, where relevant, the drier content.

A.5 Report

Report the chloride content of each test sample as the mean of its triplicate determinations.

Annex B
(normative)

Determination of magnesium sulphate

A.1 Reagents

A.1.1 Patton and Reeders' Indicator, mix 0.1 g of 2-hydroxy 1-(2-hydroxy-4-sulpho-l-naphthylazo)-3-naphthoic acid with 10 g of sodium sulphate powder.

A.1.2 Ammonium hydroxide-ammonium chloride buffer solution, mix 350 ml of ammonium hydroxide (20 % m/m) with 54 g of ammonium chloride. Dilute with water and make up the volume to 1 000 ml. The pH of the solution should be not more than 10.

A.1.3 Standard calcium solution (0.01 M), dissolve 5.005 g of calcium carbonate (CaCO3) in dilute hydrochloric acid; when effervescence ceases, dilute with water to 500 ml.

A.1.4 Ethylenediamine tetra-acetate solution (0.01 M), dissolve 3.72 g of disodium ethylenediamine tetra-acetate dihydrate in water and make up the volume to 1 L.

A.2 Procedure

A.2.1 Standardization of EDTA solution

A.2.1.1 Take 10 ml of standard magnesium solution in a conical flask. Add 20 ml of water, 1 ml of Patton and Reeders' indicator and 25 ml of ammonium hydroxide-ammonium chloride buffer solution. Heat to 40 °C to 50 °C and then titrate with EDTA solution, maintaining the temperature between 40 °C and 50 °C until the colour changes from wine red to distinct blue. Calculate the molarity of EDTA solution using the formula below:

$$\frac{10 \times M_1}{V_1}$$

where

M_1 is the molarity of standard calcium solution;

V_1 is the volume, in millitres, of EDTA solution used for titration.

A.2.1.2 Weigh accurately about 1 g of the sample, previously dried at 300°C and dissolve in 100 ml of water in a volumetric flask. Take 10 ml of this solution in a conical flask.

A.2.1.3 Add 20 ml of water, about 0.5 g of Patton and Reeders' indicator and 25 ml of ammonium hydroxide-ammonium chloride buffer solution.

A.2.1.4 Heat to 40 °C to 50 °C and titrate with standard EDTA solution, maintaining the temperature between 40 °C and 50 °C, until the colour changes from wine red to distinct blue.

A.3 Calculation

The Magnesium sulphate (MgSO4), expressed as percent by mass, shall be calculated using the formula below:

$$\frac{120.4\ V_2\ M_2}{M}$$

where

V_2 is the volume, in millitres, of standard EDTA solution used;

M_2 is the molarity of standard EDTA solution;

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

Bibliography

[1] CODEX STAN 150-1985, *Standard for food grade salt*

[2] EAS 35:2021, *Fortified edible salt— Specification*

[3] IS 2730:1977, *Magnesium sulphate (Epsom salt)*

[4] Maflahah, I., Febriana, R. N., Indarto, C., & Asfan, D. F. (2022, July). Characterizing the quality of bath salt enriched with lemongrass essential oils as fragrant agent. In IOP Conference Series: Earth and Environmental Science (Vol. 1059, No. 1, p. 012074). IOP Publishing.

[5] Proksch, E., Nissen, H. P., Bremgartner, M., & Urquhart, C. (2005). Bathing in a magnesium-rich Dead Sea salt solution improves skin barrier function, enhances skin hydration, and reduces inflammation in atopic dry skin. International journal of dermatology, 44(2), 151-157.

