DEAS 425-1: 2023

ICS 71.100.70

DRAFT EAST AFRICAN STANDARD

Skin powders — Specification — Part 1: Body and face powder

EAST AFRICAN COMMUNITY

Second Edition 2023

Copyright notice

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 425-1:2017), which has been technically revised.

EAS 425 consists of the following parts, under the general title *Skin powders — Specification*:

- *Part 1: Body and face powder*

- *Part 2: baby powder*

Skin powders — Specification — Part 1: Body and face powder

1 Scope

This Draft East African Standard specifies the requirements, sampling and test methods for body and face powders which cover talcum powders, toilet powders, deodorant powders and dusting powders, for adult use only.

This standard does not cover powders with therapeutic claims.

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 — General requirements*

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

EAS 846, *Glossary of terms relating to the cosmetic i*ndustry

EAS 847-2, *Cosmetics — Analytical methods — Part 2: Determination of moisture content and volatile matter content*

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

EAS 847-24, *Cosmetics — Analytical methods — Part 24: Determination of matter insoluble in boiling wate*r

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

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 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 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

body powder
finely powdered free flowing absorbent inoccuous material such as natural talc (hydrous silicate of magnesium with the formula $Mg_3Si_4O_{10}(OH)_2$) and may contain small amounts of perfume and colouring matter, as well as other ingredients consistent with the accepted practice in the cosmetic industry. The latter may include materials having antiperspirant and deodorant properties.

4 Requirements

4.1 General requirements

4.1.1 All ingredients including dyes, pigments and colours shall comply with EAS 377.

4.1.2 Face powder shall essentially be similar to body powder except that it shall be of finer particle size and free from grit.

4.1.3 The product shall have no undesirable or harmful effect on the skin when used as intended by the manufacturer.

4.1.4 The product shall not have unpleasant odour even with aging.

4.2 Specific requirements

The product shall comply with the requirements given in Table 1 when tested in accordance with the test methods prescribed therein.

Table 1 — Specific requirements for body and face powders

S/N	Characteristic	Requirement		Test method
		Body powder	Face powder	
i.	Matter insoluble in boiling water, % m/m, min.	90.0	90.0	EAS 847-24
ii.	Fineness, max.:			EAS 847-25
	Residue on 75-µ sieve, % m/m, max.	5.0	1.0	
	Residue on 150-µ sieve, % m/m, max.	5.0	5.0	
iii.	Moisture and volatile matter, % m/m, max.	2.0	3.0	EAS 847-2
iv.	Asbestos	Absent	Absent	Annex A
v.	Boric acid[a] % m/m, max.	5	5	Annex B

[a] applicable to skin powder where boric acid has been used

4.3 Microbiological requirements

The product shall comply with the microbiology limits specified in Table 2 when tested in accordance to the test methods described therein.

Table 2— Microbiology limits for body and face powders

S/N	Characteristic.	Requirement	Test method
	Total viable count, cfu/g, max	1000	ISO 21149
	Staphylococcus aureus (per g)	Not detected	ISO 22718
	Pseudomonas aeruginosa (per g)	Not detected	ISO 22717
	Candida albicans (per g)	Not detected	ISO 18416
	Total yeast and mould, CFU/g, max.	100	ISO 16212

5 Heavy metal contaminants

The product 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 — Limits for heavy metal contaminants for body and face powders

S/No.	Characteristic	Maximum limit[a] mg/kg	Test method
i.	Lead	10	EAS 847-16
ii.	Arsenic	2	
iii.	Mercury	1	
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 Packaging

The product 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

7.1 In additional to the labelling requirements given in EAS 346, the package shall be legibly and indelibly marked with the product name as “Body powder” or “Face powder”.

7.2 Where boric acid has been used in the formulation of skin powder, the container shall be prominently marked as follows: CAUTION This powder contains boric acid and is NOT to be used on infants.

8 Sampling

Sampling shall be carried out in accordance with ISO 24153.

Annex A
(normative)

Determination of asbestos

A.1 Materials

Tremolite and chrysotile

A.2 Instrument and reagents

The X-ray diffraction analysis is performed with a Rigaku D/max 2550 diffractometer using a graphite diffracted-beam monochromator and Cu Ka radiation at 40 kV and 150 mA. The instrument is configured with a 0.3-mm receiving slit. On the continuous scan, the scanning speed is set at 8° per minute, while when using the step-scan mode the scan counting time is set as 150 s. All other reagents are of analytical grade.

A.3 Preparation of the 0.5 % tremolite and chrysotile standards

In order to determine trace-level tremolite and chrysotile in talc, the asbestos is separated from the impurities.

A.3.1 Tremolite and chrysotile reference standard

The tremolite and chrysotile raw material samples are analyzed by PXRD and the patterns are recorded between 3° and 80°. After the full-range scan, check for contaminants such as mixed calcite and calcium carbonate etc. The limitations of using PXRD as an analytical method include interferences from other crystalline phases and preferred orientations, which can be overcome by proper sample treatment. In order to eliminate the interference of these impurities and prepare the asbestos in a powder form which can be used in homogeneous mixing with talc, the raw materials are processed.

A.3.1.1 Acid treatment

3 mol/l of hydrochloric acid is used in the treatment. Tremolite and chrysotile are treated with acid and then washed with water to remove soluble impurities and excess acid. The 3 M acid is selected considering its effectiveness of removing impurities and maintaining the intensity of talc.

A.3.1.2 Ashing processing

The powder form of tremolite is obtained after one hour ashing at the temperature of 650 °C and the chrysotile powder form is produced after 1.5 h ashing at the temperature of 700 °C.

A.3.2 Preparation of the talc standard

Chlorite is a common associated mineral in talc. The diffraction peak of chlorite overlaps with that of talc. Because asbestos is stable at 600 °C while chlorite will be decomposed at this high temperature, talc is ashed for one hour at 600 °C to eliminate the interference of chlorite.

A.3.3 Preparation of the 0.5 % tremolite and chrysotile standard

Due to the low content of tremolite and chrysotile asbestos in talc, each standard is prepared separately by accurately weighing 5 mg of tremolite and chrysotile and mixing this well with 995 mg of talc, respectively.

A.3.4 Preparation of talc samples

The talc samples are ground and sieved to reach homogeneity. To avoid the distortion of the PXRD pattern caused by the uniformity of the samples, all of the talc sample particle sizes are controlled under 10 mm. Three testing batches, about 50 mg each, are taken from each type of sample.

A.4 Results and interpretation

A.4.1 Characteristics diffraction peak

To avoid interference, the characteristic diffraction peak of tremolite is chosen at 2θdegree 10.3°, and the peaks of chrysotile at 2θdegree 12.2° and 24.4° are selected. The scan range is 10° to 11° for tremolite, and 11° to 13° plus 24° to 26° for chrysotile.

A.4.2 Limit of detection (LOD)

Through the continuous reduction of asbestos in the talc, when the signal to noise ratio (SNR) value is 3:1, the content is defined as the LOD. The PXRD results of trace level asbestos in talc show that the LODs of tremolite and chrysotile are all valued as 0.1 %.

A.4.3 Standard curve

A series content of 0.3 %, 0.4 %, 0.5 %, 0.6 %, 0.7 % and 0.8 % tremolite and chrysotile standards are prepared with purified talc for PXRD analysis, respectively. The results should show that at the characteristics of 2θ = 10.3° for tremolite and 2θ = 12.2° for chrysotile, the relationship between the content of asbestos and the intensity of the asbestos are linear. The equation obtained from the intensity versus the content of tremolite is $Y = 245.71X + 537.52$ ($R^2 = 0.9931$) and the linear equation of chrysotile is $Y = 129.43X + 449.31$ ($R^2 = 0.9987$). Standard curve results are shown on Table A.1.

Table A.1 — The PXRD peak intensities of the tremolite and chrysotile asbestos standards

Tremolite			**Chrysotile**		
Concentration %	2θ °	**Heights (CPS)**	**Concentration** %	2θ °	**Heights (CPS)**
0.3	10.334	616	0.3	12.360	488
0.4	10.348	631	0.4	12.342	502
0.5	10.335	658	0.5	12.377	514
0.6	10.357	684	0.6	12.324	526
0.7	10.303	714	0.7	12.356	539
0.8	1.0362	733	0.8	12.382	554

A.5 Sample analysis

Tremolite and chrysotile asbestos samples analysis is carried out by the following steps.

A.5.1 A full range scan is used with the continuous scanning mode. The full PXRD patterns of the samples are recorded between 3° and 60° at the scan speed of 8° per minute.

A.5.2 A partial range scan is performed in the continuous scanning mode and the partial PXRD patterns of the samples are recorded between 9° and 13°, 11° to 13° and 22° to 26° with a step size of 0.002°, respectively. If the characteristic diffraction peaks of tremolite or chrysotile asbestos are present and the SNR is above 10, then asbestos is analysed.

A.5.3 A partial range scan is carried out in the step-scan mode and the partial PXRD patterns of the samples are recorded between 10° and 11°, 11.4° to 12.6°, 23.7° to 24.6° with a step size of 0.02° per step and a count time of 150 s. If the characteristic diffraction peaks of tremolite or chrysotile asbestos are present and the SNR is above 3, then asbestos is analysed.

Annex B
normative

Determination of boric acid

B.1 Reagents

B.1.1 Mannitol or Sorbitol — Neutral

Five grams of the reagent dissolved in 50 ml of carbon dioxide-free water shall require for neutralization not more than 0.3 ml of 0.02 N sodium hydroxide solution using phenolphthalein solution as indicator.

B.1.2 Standard Sodium Hydroxide Solution —1 N

B.1.3 Phenolphthalein Indicator -Solution — Dissolve 0.1 g of phenolphthalein in 60 ml of rectified spirit and dilute with of water to 100 ml

B.2 Procedure

B.2.1 Weigh about 1 g of the sample and dissolve it in about 120 ml of water by heating, avoid boiling. Cool the solution to ambient temperature, add approximately 15 g of the mannitol or sorbitol and 0.4 ml of phenolphthalein indicator solution.

B.2.2 Titrate the solution with standard sodium hydroxide solution to a distinct pink colour.

NOTE - To ensure that the correct titration end point is obtained, the following standard colour matching solution may be used for comparison with the solution being titrated.

B.2.3 Mix 50 ml of a 3.81 g/l solution of disodium tetraborate ($Na_2B4O_7.10H_2O$), 100 ml of water, 2.0 ml of hydrochloric acid (0.25 N) and 0.4 ml of Phenolphthalein Indicator solution.

B.2.4 Equal volume of this solution and of the titrated liquid shall be compared in similar beakers.

B.3 Calculation

The boric acid content, expressed as percent, shall be calculated as follows;

$$\frac{6.184\,V}{M}$$

where

V is the volume, in millilitres, of standard sodium hydroxide solution used in the titration; and

M is the mass, in grams, of the sample taken for the test

Bibliography

[1] EAS 425-1: 2017, *Skin powders — Specification — Part 1: Body and face powder*

[2] IS 263:1990, Boric acid for cosmetic industry to cater for boric acid

[3] Hongguo, Z., Renyong, L., Qun, X., & Rohrer, J. (2016). Determination of Trace Amounts of Boric Acid in Cosmetics. Thermo Fisher Scientific Inc. AN71507-EN 08/16M (1-6)