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DRAFT EAST AFRICAN STANDARD

Cosmetics — Analytical methods — Part 11: Determination of allyl isothiocyanate

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.

This second edition cancels and replaces the first edition (EAS 847-11:2017), which has been technically revised.

EAS 847 consists of the following parts, under the general title *Cosmetics — Analytical methods*:

- *Part 1: Glossary of terms*
- *Part 2: Determination of moisture content and volatile matter content*
- *Part 3: Determination of insoluble impurities*
- *Part 4: Determination of acid value and free fatty acids*
- *Part 5: Determination of unsaponifiable matter*
- *Part 6: Determination of melting point*
- *Part 7: Determination of specific gravity*
- *Part 8: Titre test*
- *Part 9: Determination of colour*
- *Part 10: Determination of acetyl value and hydroxyl value*
- *Part 11: Determination of allyl isothiocyanate*
- *Part 12: Determination of flash point by Pensky – Martens Closed Cap Tester*
- *Part 13: Determination of rancidity*

- *Part 14: Determination of Polenske value*
- *Part 15: Determination of ash content*
- *Part 16: Determination of lead, mercury and arsenic content*
- *Part 17: Determination of pH*
- *Part 18: Determination of thermal stability*
- *Part 19: Determination of non-ionic, anionic and cationic surfactant content*
- *Part 20: Determination of lather volume (foaming power)*
- *Part 21: Determination of free acid in oils*
- *Part 22: Determination of sulphur and sulphides in oils*
- *Part 23: Test for absence of grit in powders*
- *Part 24: Determination of matter insoluble in boiling water*
- *Part 25: Determination of fineness*
- *Part 26: Determination of boric acid*
- *Part 27: Determination of total fatty substance by gravimetric method*
- *Part 28: Determination of free caustic alkali*

DRAFT EAST AFRICAN STANDARD FOR PUBLIC REVIEW

Cosmetics — Analytical methods — Part 11: Determination of allyl isothiocyanate

1 Scope

This Draft East African prescribes the test methods for the determination of allyl isothiocyanate in oils and fats for cosmetic industry.

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EAS 847-1 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/>

4 Test method

4.1 Principle

The isothiocyanate in the oil/ fat is steam - distilled into an excess of standard AgNO_3 solution where it reacts to form a silver complex. The excess AgNO_3 is then back titrated with standard Ammonium thiocyanate using ferric ammonium sulphate as an indicator.

4.2 Apparatus

4.2.1 Distillation flask, 500-mL

4.2.2 Reflux condenser

4.2.3 Round bottomed flask, 200-mL

4.2.4 Water bath

4.3 Reagents

4.3.1 Ethyl alcohol, 95 % (by volume) or rectified spirit neutral to phenolphthalein

4.3.2 Silver nitrate solution, approximately 0.1 N

4.3.3 Ammonium hydroxide solution, 10 % (m/v)

4.3.4 Nitric acid, analytical grade

4.3.5 Ferric ammonium sulphate indicator, 0.1 % solution in water

4.3.6 Standard ammonium thiocyanate solution, approximately 0.1 N

4.4 Procedure

4.4.1 Weigh about 5 g of the sample into a 500-mL distillation flask and add 25 mL of ethyl alcohol, 250 mL of water and a few pieces of pumice stone. Distil the mixture in steam and collect the distillate in a 200-mL round bottomed flask containing exactly 25 mL of silver nitrate solution and 10 mL of ammonium hydroxide solution. Collect as rapidly as possible about 150 mL of the distillate. Attach the reflux condenser to the round bottomed flask and heat the mixture for about one hour on a boiling water-bath.

4.4.2 Cool to room temperature, add water to make up to 200 mL and filter the contents after shaking. Take 100 mL of the filtrate, add 6 mL of nitric acid and a few drops of ferric ammonium sulphate indicator, and titrate with standard ammonium thiocyanate solution until a persistent red colour is obtained. Carry out a blank test at the same time.

4.5 Calculation

The allyl isothiocyanate content, percent by weight, shall be expressed as follows:

$$\frac{9.915 (B - S)N}{m}$$

where

B is the volume, in millilitres, of standard ammonium thiocyanate solution required for the blank determination;

S is the volume, in millilitres, of standard ammonium thiocyanate solution required for the sample;

N is the normality of standard ammonium thiocyanate solution; and

m is the mass, in grams, of the sample taken for test.

Bibliography

EAS 847-11: 2017, *Cosmetics — Analytical methods — Part 11: Determination of allyl isothiocyanate*

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