DEAS 847-8: 2025

ICS 71.100.70

DRAFT EAST AFRICAN STANDARD

Cosmetics — Analytical methods — Part 8: Determination of titre test

EAST AFRICAN COMMUNITY

Second Edition 2025

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 847-8:2017), 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*

Cosmetics — Analytical methods — Part 8: Determination of titre test

1 Scope

This Draft East African prescribes the test method for the determination of the solidification (titre) point of fatty acids for oils and fats in the 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 oil is saponified using ethanolic potassium hydroxide and dried. The resulting soap is boiled with acid to form fatty acids which separate from the aqueous solution in a clear molten layer. The titre is taken as the point when the mass of fatty acid in the capillary tube rises.

4.2 Apparatus

4.2.1 Steam bath/water bath

4.2.2 Hot plate

4.2.3 Top pan balance

4.2.4 Glass stirring rod

4.2.5 **Suitable saponification vessel**, for example, vitrosil basin or evaporating dish

4.2.6 **400-mL beake**r

4.2.7 10-mL measuring cylinder

4.2.8 1 000-mL beaker

4.2.9 Titre thermometer, (0 ◦C - 60 ◦C in 0.1 ◦C graduations)

4.2.10 Magnetic stirrer

4.2.11 Capillary tubes, open ended 10 cm length

4.3 Reagents

4.3.1 Industrial Methylated Spirit (IMS)

4.3.2 Standardized ethanolic potassium hydroxide solution, 0.02N

4.3.3 Concentrated nitric acid or glacial acetic acid

4.4 Procedure

4.4.1 Melt the sample at 50 ◦C - 60 ◦C on a steam bath and mix well.

4.4.2 Weigh approximately 10 g of sample into the saponification vessel and add 25 mL of the ethanolic potassium hydroxide solution.

4.4.3 Heat the vessel gently over a hot-plate, stirring the contents vigorously with a glass rod until they start to boil.

4.4.4 Transfer the vessel to a steam bath and allow to boil gently until all the IMS has evaporated.

NOTE This procedure can be assisted by blowing a current of air into the basin and mixing the soap with a stirrer until it is dry and flaky.

4.4.5 Add water to the resulting soap and boil for a minimum of 30 min.

4.4.6 Transfer the soap solution to a beaker and add 10 mL of concentrated nitric acid or glacial acetic acid.

4.4.7 Heat the mixture to boiling and continue heating until all the fatty acids separate in the form of a completely molten and clear layer.

4.4.8 Dip one end of the capillary tube in the molten layer so that the tube contains approximately 5 mm height of fatty acid and allow to cool and solidify.

4.4.9 Tape the capillary tube to the thermometer so that the layer of acid is in contact with the bulb.

4.4.10 Place the thermometer in a 1 000-mL beaker of water to which gentle heat is applied and stir using a magnetic stirrer.

4.4.11 The titre is taken as the temperature when the mass of fatty acid in the capillary tube rises.

Bibliography

EAS 847-8: 2017, *Cosmetics — Analytical methods — Part 8: Determination of titre test*