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ICS 71.100.70

DRAFT EAST AFRICAN STANDARD

Cosmetics — Analytical methods — Part 6: Determination of melting point

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 847-6:2017), 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 6: Determination of melting point

1 Scope

This Draft East African Standard prescribes the test methods for the determination of melting point of 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 methods

4.1 Open-tube capillary slip method

4.1.1 Apparatus

4.1.1.1 **Melting point tubes**, thin walled, uniformly bored capillary glass tubes open on one end and with the following dimensions:

a) length, 50 mm - 60 mm;

b) inside diameter, 0.8 mm - 1.1 mm; and

c) outside diameter, 1.2 mm - 1.5 mm

4.1.1.2 **Thermometer**, calibrated, of a suitable range with 0.1 ˚C subdivisions

4.1.1.3 **Beaker**, with a side-tube heating arrangement. A melting point tube may be used.

4.11.4 **Heat source**, gas burner, heating mantle or a spirit lamp

4.1.2 Procedure

4.1.2.1 Melt the sample and make sure that the sample is absolutely dry. Mix the sample thoroughly. Insert a clean melting point tube into the molten sample product so that a column of the material, about 10 mm long, is forced into the tube. Chill the sample in the tube at once by placing the end of the tube containing the sample against a piece of the ice until the fat has solidified. Place the melting point tube in a test-tube and hold it for 1 h either in a refrigerator or in water maintained at 4 ˚C - 10 ˚C.

4.1.2.2 Remove the melting point tube and attach it to the thermometer with any suitable means so that the lower end of the melting point tube is even with the bottom of the bulb of the thermometer. Pour water at about 10 ˚C into the beaker or the Thiele tube, and suspend the thermometer in the centre of the apparatus, so that the lower end of the sample column is about 30 mm below the surface of water.

4.1.2.3 Heat the side tube of the apparatus gently, so that the temperature of the water rises slowly at the rate of 2 ˚C per min till the temperature reaches 25 ˚C, and thereafter at the rate of 0.5 ˚C per min. Note the temperature of the water when the sample column commences to rise in the melting point tube. Report the average of two such separate determinations as the melting point, provided that the readings do not differ by more than 0.5 ˚C.

4.2 Closed-tube complete-fusion method

4.2.1 Apparatus

4.2.1.1 **Melting point tubes**, thin walled, uniformly bored capillary glass tubes open on one end with the following dimensions:

a) length, 50 mm - 60 mm;

b) inside diameter, 0.8 mm - 1.1 mm; and

c) outside diameter, 1.2 mm - 1.5 mm.

4.2.1.2 **Thermometer**, with 0.10 ˚C subdivisions and a suitable range. The thermometer should be calibrated.

4.2.1.3 **Large test-tube**

4.2.1.4 **Glass beaker**, 600-mL capacity

4.2.1.5 **Heat source**, gas burner or electric hot-plate with rheostat control

4.2.2 Procedure

4.2.2.1 Melt the sample and make sure that the sample is absolutely dry. Mix the sample thoroughly. Insert a clean melting point tube into the molten product so that a column of the material about 10 mm long is forced into the tube. Cautiously fuse one end of the tube (where the sample is located) in a small flame, taking care not to burn the fat. Place the tube in a beaker and while the fat is still in the liquid state, transfer to a refrigerator and hold at 4 ˚C - 10 ˚C overnight (about 16 h).

4.2.2.2 Remove the tube from the refrigerator, and attach by any suitable means to the thermometer so that the lower end of the melting point tube is even with the bottom of the bulb of the thermometer. Suspend the thermometer in large test-tube containing water and immerse it in the 600-mL beaker which is about half-full of water. The bottom of the thermometer is immersed in the water about 30 mm below the surface. Adjust the starting bath temperature from 8 ˚C - 10 ˚C below the melting point of the sample at the beginning of the test. Agitate the water in the large test-tube as well as in the beaker with a small stream of air or by other means, and apply heat so as to increase the bath temperature at the rate of about 0.5 ˚C per min.

4.2.2.3 As fats usually pass through an opalescent stage before melting completely, the heating is continued until the liquid in the tube is completely clear throughout. Observe the temperature at which the liquid becomes clear.

4.2.2.4 Report the average of two such separate determinations as the melting point, provided that the readings do not differ by more than 0.5 °C.

Bibliography

EAS 847-6: 2017, *Cosmetics — Analytical methods — Part 6: Determination of melting point*