

British Standard

Methods of analysis of fats and fatty oils

Part 2. Other methods

Section 2.6 Determination of saponification value

Confirmed
- JUN 1993

Méthode d'analyse des corps gras

Part 2. Autres méthodes

Section 2.6 Détermination de l'indice de saponification

Verfahren zur Analyse von Fetten und Fettölen

Teil 2. Weitere Verfahren

Abschnitt 2.6. Bestimmung der Verseifungszahl

IMPORTANT NOTE. It is essential that BS 684 : Part 0, which is published separately, be read in conjunction with this Section.

National foreword

This revision of Section 2.6 of BS 684 has been prepared under the direction of the Food and Agriculture Standards Policy Committee. It is identical with ISO 3657 : 1988 'Animal and vegetable fats and oils — Determination of saponification value' published by the International Organization for Standardization (ISO), and in the preparation of which the United Kingdom played a full part. This revision supersedes BS 684 : Section 2.6 : 1977 which is withdrawn.

Cross-references

International standard	Corresponding British Standard
ISO 661-1980	BS 684 Methods of analysis of fats and fatty oils Part 0 : 1982 General introduction Appendix B (Identical)
ISO 5555-1983	BS 627 : 1982 Methods for sampling animal and vegetable fats and oils (Technically equivalent)

Additional information. With reference to clause 5, water complying with grade 3 of BS 3978 'Specification for water for laboratory use' is suitable.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Animal and vegetable fats and oils — Determination of saponification value

1 Scope

This International Standard specifies a method for the determination of the saponification value of animal and vegetable fats and oils.

If mineral acid is present, the results given by this method are not interpretable unless the mineral acids are determined separately.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 661 : 1980, *Animal and vegetable fats and oils — Preparation of test sample*.

ISO 5555 : 1983, *Animal and vegetable fats and oils — Sampling*.

3 Definition

For the purposes of this International Standard, the following definition applies.

saponification value: The number of milligrams of potassium hydroxide required to saponify 1 g of fat under the conditions specified in this International Standard.

4 Principle

Boiling of a sample under reflux with ethanolic potassium hydroxide solution, followed by titration of the excess potassium hydroxide with standard volumetric hydrochloric acid solution.

5 Reagents

All reagents shall be of recognized analytical grade and the water used shall be distilled water or water of equivalent purity.

5.1 Potassium hydroxide, $c(\text{KOH}) \approx 0,5 \text{ mol/l}$ solution in 95 % (V/V) ethanol.

This solution shall be colourless or straw yellow. A stable colourless solution can be prepared by either of the following procedures.

a) Reflux 1 litre of ethanol with 8 g of potassium hydroxide and 5 g of aluminium pellets for 1 h, then distil immediately. Dissolve the required amount of potassium hydroxide in the distillate. Allow to stand for several days, then decant the clear supernatant liquid from the potassium carbonate deposited.

b) Add 4 g of aluminium tertbutylate to 1 litre of ethanol and allow the mixture to stand for several days. Decant the supernatant liquid and dissolve in it the required amount of potassium hydroxide. Allow to stand for several days, then decant the clear supernatant liquid from the potassium carbonate deposited.

Store this solution in a brown or yellow glass bottle fitted with a rubber stopper, and decant it for use.

5.2 Hydrochloric acid, standard volumetric solution, $c(\text{HCl}) = 0,5 \text{ mol/l}$.

5.3 Phenolphthalein, 10 g/l solution in 95 % (V/V) ethanol, or **alkali blue 6B**, 20 g/l solution in 95 % (V/V) ethanol.

5.4 Boiling aids.

6 Apparatus

Usual laboratory apparatus and, in particular, the following.

6.1 Conical flask, of 250 ml capacity, made of alkali-resistant glass and having a ground neck.