**SRI LANKA STANDARD 313 : PART 3 / SECTION 13 : 2009**
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# METHODS FOR ANALYSIS OF ANIMAL AND VEGETABLE FATS AND OILS

## PART 3 – DETERMINATION OF FOREIGN SUBSTANCES AND PARAMETERS AFFECTING QUALITY AND STABILITY

## Section 13 : Determination of soap content

**(Second Revision)**

**SRI LANKA STANDARDS INSTITUTION**

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**Gr. 3**



**SRI LANKA STANDARDS INSTITUTION**
**No. 17, Victoria Place,**
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**Sri Lanka**

Sri Lanka Standards are subject to periodical revision in order to accommodate the progress made by industry. Suggestions for improvement will be recorded and brought to the notice of the Committees to which the revisions are entrusted.

This standard does not purport to include all the necessary provisions of a contract.

# Sri Lanka Standard

# METHODS FOR ANALYSIS OF ANIMAL AND VEGETABLE FATS AND OILS
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## FOREWORD

This Sri Lanka Standard was approved by the Sectoral Committee on Agricultural and Food Products and was authorized for adoption and publication as a Sri Lanka Standard by the Council of the Sri Lanka Standards Institution on 2009-10-28.

This standard was first published in 1976 and subsequently revised in 1993. The standard prescribes the general methods for determining whether the material conforms to the requirements of the relevant individual standards and thus form a necessary adjunct to series of Sri Lanka Standard Specification for individual oils and fats. However keeping in view the experience gained during the years and various International standards brought out by the International Organization for Standardization (ISO) on the subject of testing animal and vegetable fats and oils, it was decided to revise it with a view to updating the existing methods of test and by incorporating those not covered earlier.

In order to accommodate large number of test methods within the scope of one standard, this standard is published in four parts covering different characteristics as indicated below.

Part 1 Determination of physical characteristic
Part 2 Determination of chemical characteristics
Part 3 Determination of foreign substances and parameters affecting quality and stability
Part 4 Determination of principle constituents and natural constituents.

## 1 SCOPE

This section prescribes a method for the determination of soap content in fats and oils.

## 2 PRINCIPLE

Volumetric titration with hydrochloric acid using bromophenol blue as indicator.

## 3 FIELD OF APPLICATION

The method is suitable for the determination of soap content in fats and oils up to 0.05 per cent by mass.

## 4 DEFINITION

For the purpose of this section, the following definitions shall apply :

**4.1** **soap content** : The proportion of soap expressed as per cent by mass.

## 5 APPARATUS

**5.1** *Test tubes,* approximately 150 mm x 40 mm of borosilicate glass fitted with ground glass stoppers and flattened at their ends.

**5.2** *Microburette,* 5-ml capacity

## 6 REAGENTS

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

**6.1** *Distilled acetone,* containing 2 per cent (v/v) added water.

**6.2** *Hydrochloric acid,* standard solution c(HCl) = 0.01 mol/l

**6.3** *Bromophenol blue indicator***,** 1 per cent solution in 95 per cent (v/v) ethanol.

## 7 PROCEDURE

Prepare, the neutralized aqueous acetone by adding 0.5 ml of the bromophenol blue indicator (6.3) to each 100 ml of the aqueous acetone (6.1) just before use and titrating with hydrochloric acid (6.2) or alkali until it is just yellow in colour. Weigh 40 g fat into the test tube which shall have been previously well rinsed with the test solution. Add 1 ml of water, warm on the steam bath and shake vigorously. Add 50 ml of the neutralized aqueous acetone and, after warming on the steam bath, shake the vessel well and allow the contents to stand until they separate into two layers. If soap is present in the oil or fat, the upper layer will be coloured green to blue. Then add hydrochloric acid (6.2) preferably from a microburette, until the yellow colour is restored. Continue the process of warming and shaking until the yellow colour of the upper layer remains permanent.

NOTES :

*1 It is convenient, but not essential, to run, at the same time, a blank on a soap – free fat. Any difference in colour between the upper layers can then readily be perceived.*

*2 At higher concentration of soap, it is better to take 4 g of fat and use 0.01 mol/l hydrochloric acid.*

## 8 EXPRESSION OF RESULTS

$$Dissolved\ \ soap,\ \ as\ \ sodium\ \ oleate,\ per\ \ cent\ \ by\ \ mass\ \ = \frac{0.304V}{m}$$

Where,

V is the volume, in ml, of 0.01 mol/l hydrochloric acid required ; and
m is the mass, in g, of sample taken.

## 9 TEST REPORT

The test report shall show the method used and the results obtained. It shall also mention any operating conditions not specified in this section, or regarded as optional, as well as any circumstances that may have influenced the results.

The test report shall include all information necessary for the complete identification of the sample.

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