

# Methods of test for petroleum and its products —

Part 284: Determination of  
unsaponifiable and saponifiable matter  
in oils fats and waxes  
(Identical with IP 284:2004)

ICS 75.140

## National foreword

This British Standard reproduces verbatim IP 284:2004 and implements it as the UK national standard. It supersedes BS 2000-284:1993 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PTI/13, Petroleum testing and terminology, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

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### Cross-references

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### Summary of pages

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# Determination of unsaponifiable and saponifiable matter in oils fats and waxes

This standard does not purport to address all of the safety problems associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.

## 1 Scope

This standard describes a procedure for the determination of unsaponifiable and saponifiable matter in blends of mineral and fatty oils. The procedure is also suitable for essentially fatty materials. If present the free fatty acids are included in the saponifiable matter.

If required the fatty acids and the unsaponifiable matter isolated can be examined for identification.

The procedure described is not suitable for materials that contain:

- products saponifiable with difficulty, such as certain waxes, resins or esters of high fatty acids that form sparingly soluble potassium salts;
- unsaponifiable constituents of high melting point and low solubility in diethyl ether;
- highly polymerized fatty oils that form emulsions that can only be separated with difficulty.

## 2 Definitions

For the purposes of this standard the following definitions apply:

### 2.1 unsaponifiable matter

any material that does not consume alkali under the conditions of test e.g. hydrocarbon oil.

### 2.2 saponifiable matter

any material that does consume alkali under the condition of test e.g. esters and acids.

## 3 Principle

A known mass of the material is saponified with ethanolic alkali solution and the unsaponifiable matter separated and weighed. The fatty acids are then liberated, separated and weighed. From these weights the per cent mass/mass is calculated.

## 4 Chemicals and materials

During the analysis described in this standard unless otherwise specified use only chemicals of recognized analytical reagent grade and water of at least ISO 3696 grade 3 purity.

### 4.1 Ethanol, 96%

### 4.2 Potassium hydroxide solid

### 4.3 Ethanolic potassium hydroxide solution, approximately 1 mol/l, prepared in accordance with 4.3.1.

#### 4.3.1 Dissolve 56 g of potassium hydroxide (4.2) in 50 ml of water and make up to 1 l with ethanol (4.1) or obtain commercially.

### 4.4 Diethyl ether

### 4.5 Hydrochloric acid aqueous solution, approximately 3 mol/l.

### 4.6 Methyl orange aqueous solution, approximately 0,5 g/l.

### 4.7 Phenolphthalein ethanolic solution, approximately 10g/l.

### 4.8 Sodium sulfate anhydrous

### 4.9 Sodium sulfate aqueous solution, approximately 100g/l.