
INTERNATIONAL STANDARD



1385 / IV

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**Phthalate esters for industrial use — Methods of test —
Part IV : Determination of acidity to phenolphthalein —
Titrimetric method**

*Phthalates à usage industriel — Méthodes d'essai —
Partie IV : Détermination de l'acidité à la phénolphthaleïne — Méthode titrimétrique*

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

Prior to 1972, the results of the work of the technical committees were published as ISO Recommendations; these documents are in the process of being transformed into International Standards. As part of this process, Technical Committee ISO/TC 47, *Chemistry*, has reviewed ISO Recommendation R 1385-1970 and found it technically suitable for transformation. The technical committee, however, divided the Recommendation into five parts (ISO 1385-Parts I to V), which therefore replace ISO Recommendation R 1385-1970, to which they are technically identical.

ISO Recommendation R 1385 had been approved by the member bodies of the following countries :

Austria	Iran	Romania
Belgium	Ireland	South Africa, Rep. of
Brazil	Italy	Spain
Cuba	Japan	Sweden
Czechoslovakia	Korea, Rep. of	Switzerland
France	Netherlands	Thailand
Germany	New Zealand	Turkey
Hungary	Poland	United Kingdom
India	Portugal	U.S.S.R.

No member body had expressed disapproval of the Recommendation.

The member bodies of the following countries disapproved the transformation of the Recommendation into an International Standard :

France
Netherlands

Phthalate esters for industrial use – Methods of test – Part IV : Determination of acidity to phenolphthalein – Titrimetric method

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1 SCOPE AND FIELD OF APPLICATION

This part of ISO 1385 specifies a titrimetric method for the determination of the acidity to phenolphthalein of phthalate esters for industrial use.

This document should be read in conjunction with part I (see the annex).

2 PRINCIPLE

Titration of the acidity in a test portion, in ethanolic medium, with standard volumetric sodium hydroxide solution, using phenolphthalein as indicator.

3 REAGENTS

During the analysis, use only reagents of recognized analytical grade and only distilled water or water of equivalent purity.

3.1 Ethanol, 95 % (V/V).

3.2 Sodium hydroxide, 0,1 N standard volumetric solution.

3.3 Phenolphthalein, 5 g/l ethanolic solution.

Dissolve 0,5 g of phenolphthalein in 100 ml of the ethanol (3.1) and make faintly pink by the addition of the sodium hydroxide solution (3.2).

4 APPARATUS

Ordinary laboratory apparatus and

4.1 Conical flask, of borosilicate glass, of capacity 250 ml, provided with a stopper carrying a soda-lime tube.

4.2 Microburette, graduated in 0,02 ml or smaller divisions.

5 PROCEDURE

Introduce 50 ml of the ethanol (3.1) into the conical flask (4.1), add 0,5 ml of the phenolphthalein solution (3.3) and make faintly pink by addition of the sodium hydroxide solution (3.2). Add 50 g, weighed to the nearest 0,5 g, of the laboratory sample, and titrate the mixture with the standard volumetric sodium hydroxide solution (4.2), placed in the microburette, until the pink colour persists for 5 s.

6 EXPRESSION OF RESULTS

The acidity (A), expressed as a percentage by mass of phthalic acid [C₆H₄(COOH)₂], is given by the formula

$$0,008\ 3 \times V \times \frac{100}{m} - \frac{0,83\ V}{m}$$

where

V is the volume, in millilitres, of the standard volumetric sodium hydroxide solution (3.2) used;

m is the mass, in grams, of the test portion;

0,008 3 is the mass, in grams, of phthalic acid corresponding to 1 ml of an exactly 0,1 N sodium hydroxide solution.

NOTE – If the concentration of the standard volumetric solution used is not exactly as specified in the list of reagents, an appropriate correction should be made.

ANNEX

ISO PUBLICATIONS RELATING TO PHTHALATE ESTERS FOR INDUSTRIAL USE

ISO 1385/I – General.*

ISO 1385/II – Measurement of colour after heat treatment (Diallyl phthalate excluded).

ISO 1385/III – Determination of ash.

ISO 1385/IV – Determination of acidity to phenolphthalein – Titrimetric method.

ISO 1385/V – Determination of ester content – Titrimetric method after saponification.

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* The determination of the iodine value specified in ISO 1385/I is applicable only to diallyl phthalate.
The determination of the viscosity specified in ISO 1385/I is not applicable to diallyl phthalate.