

INTERNATIONAL STANDARD**1897 / III**

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**Phenol, *o*-cresol, *m*-cresol, *p*-cresol, cresylic acid and xlenols
for industrial use — Methods of test —
Part III : Determination of neutral oils and pyridine bases**

*Phénol, o-crésol, m-crésol, p-crésol, acide crésylique et xylénols à usage industriel — Méthodes d'essai —
Partie III : Dosages des huiles neutres et des bases pyridinées*

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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 1899-1971 and found it technically suitable for transformation. Number 1899, however, has been changed to 1897/III. International Standard ISO 1897/III therefore replaces ISO Recommendation R 1899-1971, to which it is technically identical.

ISO Recommendation R 1899 had been approved by the member bodies of the following countries :

Australia	Hungary	Romania
Belgium	India	South Africa, Rep. of
Chile	Israel	Spain
Czechoslovakia	Italy	Switzerland
Egypt, Arab Rep. of	Japan	Thailand
France	Netherlands	Turkey
Germany	New Zealand	United Kingdom
Greece	Poland	U.S.S.R.

No member body had expressed disapproval of the Recommendation.

The member body of the following country disapproved the transformation of the Recommendation into an International Standard :

Netherlands

Phenol, *o*-cresol, *m*-cresol, *p*-cresol, cresylic acid and xylenols for industrial use — Methods of test —

Part III : Determination of neutral oils and pyridine bases

1 SCOPE AND FIELD OF APPLICATION

This part of ISO 1897 specifies a volumetric method, after distillation, for the determination of neutral oils, and a titrimetric method, after distillation, for the determination of pyridine bases, in phenol, *o*-cresol, *m*-cresol, *p*-cresol, cresylic acid and xylenols for industrial use.

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

2 PRINCIPLE

Distillation of the neutral oils and pyridine bases from an aqueous alkaline solution of a test portion. Measurement of the volume of neutral oils collected. Titration of the pyridine bases present in the aqueous distillate and in the neutral oils with standard volumetric hydrochloric acid solution using methyl orange and xylene cyanol FF 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 Sodium chloride, 20 g/l solution.

3.2 Sodium hydroxide, 270 g/l solution.

3.3 Hydrochloric acid, approximately 0,1 N solution.

3.4 Hydrochloric acid, 1 N standard volumetric solution.

3.5 Phenolphthalein, 5 g/l ethanolic solution.

Dissolve 0,5 g of phenolphthalein in 100 ml of 95 % (V/V) ethanol, and make faintly pink by the addition of dilute sodium hydroxide solution.

3.6 Methyl orange and xylene cyanol FF, aqueous ethanolic solution.

Dissolve 1 g of methyl orange and 1,4 g of xylene cyanol FF in 500 ml of 50 % (V/V) ethanol.

4 APPARATUS

Ordinary laboratory apparatus, and

4.1 Distillation apparatus, as shown in figure 1 and including the following components :

4.1.1 Distillation flask (A), of borosilicate glass, capacity 1 000 ml.

4.1.2 Splash head (B), as shown in figure 2.

4.1.3 Bubbler tube (C), as shown in figure 3.

4.1.4 Liebig condenser (D), of borosilicate glass, as shown in figure 4.

4.1.5 Separating funnel receiver (E) : one of the two types shown in figure 5, according to whether the sample is expected to contain more than or less than 1 % (*m/m*) of neutral oil.

4.1.6 Safety screen, placed between the apparatus and the operator.

5 PROCEDURE

5.1 Test portion

Weigh into the flask (A), to the nearest 0,1 g, 100 g of the test sample.

5.2 Preparation of apparatus

Before commencing the test, it is essential to ensure that the receiver (E) and conical flask mentioned in 5.4 are scrupulously clean. Washing with detergent, followed by thorough rinsing first in tap water and then in distilled water, is usually adequate.

5.3 Distillation

Add to flask (A), containing the test portion (5.1), 170 ml of the sodium hydroxide solution (3.2), followed by 100 ml of water, using the same measuring cylinder, without