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ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

47

ISO RECOMMENDATION

R 1900

PHENOL, *o*-CRESOL, *m*-CRESOL AND *p*-CRESOL FOR INDUSTRIAL USE

DETERMINATION OF RESIDUE ON EVAPORATION

1st EDITION

May 1971

Printed in Switzerland

Also issued in French and Russian. Copies to be obtained through the national standards organizations.

BRIEF HISTORY

The ISO Recommendation R 1900, *Phenol, o-cresol, m-cresol and p-cresol for industrial use – Determination of residue on evaporation*, was drawn up by Technical Committee ISO/TC 47, *Chemistry*, the Secretariat of which is held by the Ente Nazionale Italiano di Unificazione (UNI).

Work on this question led to the adoption of Draft ISO Recommendation No. 1900, which was circulated to all the ISO Member Bodies for enquiry in November 1969. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

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

No Member Body opposed the approval of the Draft.

This Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided to accept it as an ISO RECOMMENDATION.

ISO Recommendation R 1900 May 1971

PHENOL, *o*-CRESOL, *m*-CRESOL AND *p*-CRESOL FOR INDUSTRIAL USE

DETERMINATION OF RESIDUE ON EVAPORATION

WARNING. These materials burn the skin and can be absorbed into the system through the skin. It is essential for the sampler to wear protective gloves, for example of polyvinyl chloride, and also a face shield. Inhalation of the vapours from hot material is to be avoided.

Phenols are extremely hygroscopic and care should be taken to avoid contamination with atmospheric or other moisture.

1. SCOPE AND FIELD OF APPLICATION

This ISO Recommendation describes a method for the determination of residue on evaporation of phenol, *o*-cresol, *m*-cresol and *p*-cresol for industrial use.

2. SAMPLING

Apply the principles given in ISO Recommendation R . . .*. The following principles should also be observed :

Place the laboratory sample representative of the material taken from the bulk in a clean, dry, dark-coloured, glass-stoppered bottle of such a size that it is nearly filled by the sample. If it is necessary to seal this bottle, care should be taken to avoid contaminating the contents.

3. PRINCIPLE

Determination of the mass of residue after evaporation of the test portion, first on a boiling water bath and then in an oven at 105 °C.

4. APPARATUS

Ordinary laboratory apparatus and

4.1 *Basin*, of platinum, silica or porcelain, approximately 80 mm in diameter.

4.2 *Boiling water bath*, with opening of diameter approximately 60 mm.

4.3 *Oven*, capable of being maintained at a temperature of 105 ± 2 °C.

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* Sampling of chemical products will form the subject of a future ISO Recommendation.

5. PROCEDURE

5.1 Test portion

Weigh, to the nearest 0.001 g, approximately 10 g of the laboratory sample into the tared basin (4.1), previously heated in the oven (4.3) to constant mass.

If the material is in the form of a solid crystalline mass or contains crystals, it should be completely melted and thoroughly mixed before sampling, precautions being taken against overheating or contamination by moisture.

5.2 Determination

Heat the basin containing the test portion (5.1) on the boiling water bath (4.2) in a fume cupboard for 3 hours and then in the oven (4.3) maintained at a temperature of 105 ± 2 °C for 1 hour. Cool the basin and contents to room temperature in a desiccator and weigh again to the nearest 0.001 g. Determine the mass of the residue by difference.

6. EXPRESSION OF RESULTS

The residue on evaporation is given, as a percentage by mass, by the following formula :

$$\frac{m_1 \times 100}{m_0}$$

where

m_0 is the mass, in grammes, of the test portion;

m_1 is the mass, in grammes, of the residue.

7. TEST REPORT

The test report should give the following particulars :

(*a*) the reference of the method used;

(*b*) the results and the method of expression used;

(*c*) any unusual features noted during the determination;

(*d*) any operation not included in this ISO Recommendation or regarded as optional.

ANNEX

This document forms one of a series of ISO Recommendations on methods of test for phenol, cresols, cresylic acid and xylenols for industrial use.

The complete list of the Recommendations already prepared or in course of preparation is as follows :

PHENOL, *o*-CRESOL, *m*-CRESOL, *p*-CRESOL, CRESYLIC ACID, XYLENOLS

ISO/R 1897, *Determination of water by the Karl Fischer method.*
ISO/R 1898, *Determination of water by the Dean and Stark method.*
ISO/R 1899, *Determination of neutral oils and pyridine bases.*

PHENOL, *o*-CRESOL, *m*-CRESOL, *p*-CRESOL

ISO/R 1900, *Determination of residue on evaporation.*
ISO/R 1901, *Determination of crystallizing point.*
ISO/R 2208, *Determination of crystallizing point after drying with a molecular sieve.**
ISO/R 1902, *Test for impurities insoluble in sodium hydroxide solution – Visual test.*
ISO/R 2273, *Determination, after combustion, of total sulphur (conductimetric method) and chlorine content (potentiometric or spectrophotometric method).**

LIQUEFIED PHENOL, *m*-CRESOL, CRESYLIC ACID, XYLENOLS

ISO/R 1903, *Determination of density at 20 °C.*

PHENOL

ISO/R 1904, *Determination of phenol content – Bromination method.**

LIQUEFIED PHENOL

ISO/R 1905, *Test for impurities insoluble in water – Visual test.*

CRESYLIC ACID AND XYLENOLS

ISO/R 1906, *Determination of distillation range.*
ISO/R 1907, *Determination of residue on distillation.*
ISO/R 1908, *Test for absence of hydrogen sulphide.*
ISO/R 1909, *Measurement of colour.*
ISO/R 1910, *Determination of* o-*cresol content.*

CRESYLIC ACID

ISO/R 1911, *Determination of* m-*cresol content.*

NOTE. – A laboratory sample of not less than 500 ml (for phenol and cresols) or 1000 ml (for cresylic acid and xylenols) is necessary to carry out the whole series of tests described in these documents.

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* At present at the stage of Draft ISO Recommendation.

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