

# ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

## ISO RECOMMENDATION R 1906

CRESYLIC ACID AND XYLENOLS  
FOR INDUSTRIAL USE

DETERMINATION OF DISTILLATION RANGE

1st EDITION

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47

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## BRIEF HISTORY

The ISO Recommendation R 1906, *Cresylic acid and xlenols for industrial use – Determination of distillation range*, 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. 1906, 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.

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## CRESYLIC ACID AND XYLENOLS FOR INDUSTRIAL USE

### DETERMINATION OF DISTILLATION RANGE

**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.

#### 1. SCOPE AND FIELD OF APPLICATION

This ISO Recommendation describes a method for the determination of distillation range of cresylic acid of high *m*-cresol content, cresylic acid of high *o*-cresol content and xlenols 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. DEFINITIONS

**3.1 Pitching point.** The point at which the temperature ceases to rise and begins to fall, while there is residue in the flask.

**3.2 Dry point.** The temperature at which the liquid just disappears from the bottom of the flask.

**NOTE.** — The flame of the burner should be removed or extinguished immediately the "dry point" is reached, otherwise the temperature recorded will be too high. The "dry point" is affected by any superheating of the vapours which may occur, and cannot therefore be recommended as an indication of the presence of high boiling constituents.

#### 4. PRINCIPLE

Distillation of a given volume of the sample, under carefully defined conditions, and determination of either the volume of distillate collected as a function of temperature, or vice versa.

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

## 5. PROCEDURE

Use the method described in ISO Recommendation R 918, *Test method for distillation (distillation yield and distillation range)*. The following particulars and modifications, specific to cresylic acid and xlenols, should be introduced in the above-mentioned ISO Recommendation.

- 5.1 Thermometer** (see clause 3.2 in ISO/R 918), of the mercury-in-glass type, certified for accuracy and conforming to the following requirements :

|                        |                                                                                            |
|------------------------|--------------------------------------------------------------------------------------------|
| Scale range            | 175 to 275 °C, 180 to 215 °C or 205 to 235 °C<br>as appropriate to the material under test |
| Immersion              | 100 mm                                                                                     |
| Graduation interval    | 0.1 °C                                                                                     |
| Maximum error          | ± 0.6 °C                                                                                   |
| Minimum scale length   | 240 mm                                                                                     |
| Maximum overall length | 430 mm                                                                                     |

- 5.2 Condenser** (see clause 3.4 in ISO/R 918)

Air cooled

- 5.3 Asbestos gauze** (see clause 3.6 in ISO/R 918)

In place of the asbestos board

- 5.4 Temperature correction** (see clause 7.2 in ISO/R 918)

A correction of  $0.082 (1.013 - p) (273 + t)$  where  $p$  is the barometric pressure in bars, and  $t$  is the mid-boiling temperature of the cresylic acid or xlenol in degrees Celsius, is added to the specified distillation temperatures.

- 5.5 Distillation** (see section 6 of ISO/R 918)

Proceed as described in clause 6.1 of ISO/R 918. Distil slowly until all the water has come over (as shown by the distillate becoming clear at the end of the condenser) before increasing the distillation rate to 3 to 4 ml per minute (see clause 6.2 of ISO/R 918). Proceed as described in clause 6.3 of ISO/R 918.

Extinguish the flame of the burner as soon as 95 % (V/V) of the distillate has been obtained. Record this temperature. If the total distillate is required, continue the distillation until either the "dry point" or the "pitching point" (see Note in section 3) is reached and then extinguish the flame. The total distillate should include that which drains from the condenser within 5 minutes of extinguishing the flame.

## 6. TEST REPORT

The test report should give the following particulars :

- the reference of the method used;
- the results and the method of expression used;
- any unusual features noted during the determination;
- any operation not included in this ISO Recommendation or regarded as optional.