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ISO RECOMMENDATION

R 1695

ORTHO-CHLOROTOLUENE FOR INDUSTRIAL USE

METHODS OF TEST

1st EDITION

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BRIEF HISTORY

The ISO Recommendation R 1695, *Ortho-chlorotoluene for industrial use – Methods of test*, 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. 1695 which was circulated to all the ISO Member Bodies for enquiry in February 1969. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

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

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 1695 August 1970

ORTHO-CHLOROTOLUENE FOR INDUSTRIAL USE

METHODS OF TEST

1. SCOPE

This ISO Recommendation describes methods of test for *o*-chlorotoluene for industrial use.

2. SAMPLING

For the preparation of the laboratory sample, use the method described in ISO Recommendation R 2209,* *Liquid halogenated hydrocarbons for industrial use – Sampling.*

3. DETERMINATION OF DISTILLATION CHARACTERISTICS

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

3.1 **Scope** (see section 1 in ISO/R 918)

This determination indicates the difference between the temperature corresponding to the collection of two volumes of distillate, A and B. These two volumes will be indicated in the specifications for the product agreed between the interested parties.

3.2 **Distillation flask** (see clause 3.1 in ISO/R 918)

Nominal capacity 150 ml.

3.3 **Thermometer** (see clause 3.2 in ISO/R 918)

Range 145 to 165 °C.

3.4 **Distillation rate** (see clause 6.2 in ISO/R 918)

4 to 5 ml per minute.

3.5 **Adjustment for thermometer error** (see clause 5.2 in ISO/R 918)

For this determination no adjustment of the thermometer readings is required for variations in barometric pressure.

4. DETERMINATION OF DENSITY

Use the method described in ISO Recommendation R 758, *Method for the determination of density of liquids at 20 °C.*

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* At present Draft ISO Recommendation.

5. DETERMINATION OF CRYSTALLIZING POINT

Use the method described in ISO Recommendation R 1392, *Determination of crystallizing point (General method)*. The following particulars and modifications, specific for *o*-chlorotoluene, should be introduced in the above-mentioned ISO Recommendation.

5.1 **Scope** (see section 1 in ISO/R 1392)

Determination of the crystallizing point of a dried sample.

5.2 **Thermometer** (see clause 4.4 in ISO/R 1392)

Range : −50 to 0 °C.

Filling : Mercury-thallium eutectic alloy.

5.3 **Preparation of test sample** (see section 5 in ISO/R 1392)

Use calcium sulphate as drying agent.

6. DETERMINATION OF *p*- AND *o*-CHLOROTOLUENE CONTENT

6.1 **Principle**

Reading, from the crystallizing point diagrams (see Fig. 1 and Fig. 2) or from the Table, of the *p*-chlorotoluene content corresponding to the crystallizing point of the sample.

6.2 **Procedure**

Determine the crystallizing point of the dried sample according to section 5 and determine the *p*-chlorotoluene content corresponding to this crystallizing point from the diagram of Figure 1.

As may be seen from the diagram, two different compositions are possible for samples with crystallizing points below −35.45 °C.

To decide which is the composition of the sample, carry out a second determination of the crystallizing point after the addition of a small amount of *p*-chlorotoluene. If the crystallizing point is lower, the composition to the right of the eutectic point is the correct one; if the crystallizing point is higher, the correct composition is to the left of the eutectic point.

This procedure should be followed whenever the determined crystallizing point is below −34 °C to confirm the composition of the sample.

o-Chlorotoluene usually contains small quantities of the para isomer.

From Figure 2, which is drawn to a larger scale, more precise readings are possible for *p*-chlorotoluene contents up to 9 %.

To simplify this reading, the Table shows the *p*-chlorotoluene content corresponding to each 0.1 °C within this concentration range.

NOTE. – It should be noted that this method normally applies to a two-component system. If the sample contains small quantities of impurities other than *p*-chlorotoluene, these will affect the value of the *p*-chlorotoluene content.

7. TEST REPORT

For each test 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.

TABLE – *o*-CHLOROTOLUENE

Depression of the crystallizing point by *p*-chlorotoluene
(Range : 0 to 9 % *p*-chlorotoluene)

Crystallizing point of the dried product °C	*p*-chlorotoluene %	Crystallizing point of the dried product °C	*p*-chlorotoluene %
− 35.45	0.0	− 37.8	4.7
− 35.5	0.1	− 37.9	4.9
− 35.6	0.3	− 38.0	5.1
− 35.7	0.5	− 38.1	5.3
− 35.8	0.7	− 38.2	5.5
− 35.9	0.9	− 38.3	5.7
− 36.0	1.1	− 38.4	5.9
− 36.1	1.3	− 38.5	6.1
− 36.2	1.5	− 38.6	6.3
− 36.3	1.7	− 38.7	6.5
− 36.4	1.9	− 38.8	6.7
− 36.5	2.1	− 38.9	6.9
− 36.6	2.3	− 39.0	7.1
− 36.7	2.5	− 39.1	7.3
− 36.8	2.7	− 39.2	7.5
− 36.9	2.9	− 39.3	7.7
− 37.0	3.1	− 39.4	7.9
− 37.1	3.3	− 39.5	8.1
− 37.2	3.5	− 39.6	8.3
− 37.3	3.7	− 39.7	8.5
− 37.4	3.9	− 39.8	8.7
− 37.5	4.1	− 39.9	8.9
− 37.6	4.3	− 40.0	9.1
− 37.7	4.5	− 40.1	9.3

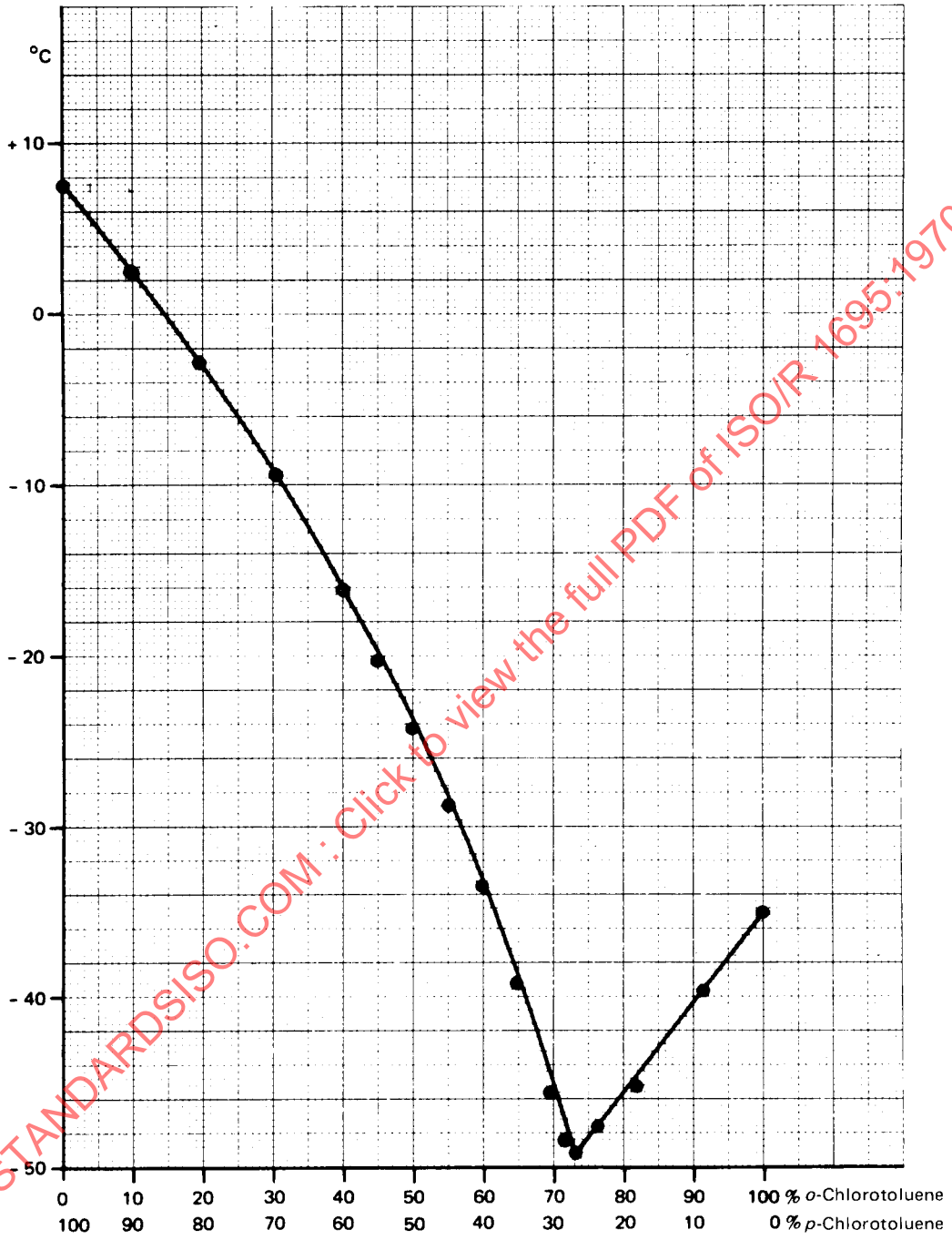

FIG. 1 – Crystallizing point diagram of the system *o*-/*p*-chlorotoluene