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ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION
R 119

PLASTICS
DETERMINATION OF FREE PHENOLS IN PHENOL-FORMALDEHYDE MOULDINGS

1st EDITION

August 1959

For each individual country the only valid standard is the national standard of that country.

Printed in Switzerland

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BRIEF HISTORY

The ISO Recommendation R 119, *Determination of Free Phenols in Phenol-Formaldehyde Mouldings*, was drawn up by Technical Committee ISO/TC 61, *Plastics*, the Secretariat of which is held by the American Standards Association, Incorporated (ASA).

At its third meeting, held in Stockholm, in August 1953, the Technical Committee assigned the development of this question to its Working Group No. 5, *Physical Chemical Properties*, under the leadership of the United Kingdom.

The draft formulated by the Working Group was presented to the Technical Committee at its fourth plenary meeting, held at Brighton, in October 1954, and then distributed to the members of the Technical Committee as a draft proposal for an ISO Recommendation.

After its reconsideration at the fifth meeting of ISO/TC 61, held in Paris, in July 1955, the draft proposal was adopted, subject to some amendments, as a Draft ISO Recommendation.

On 25 January 1957, the Draft ISO Recommendation (No. 123) was distributed to all the ISO Member Bodies and was approved, subject to certain amendments, by the following 24 (out of a total of 38) Member Bodies:

Australia	*Hungary	Romania
Austria	India	Spain
Belgium	*Ireland	Sweden
*Canada	Japan	Switzerland
Czechoslovakia	Mexico	United Kingdom
Finland	Netherlands	U.S.A.
France	*New Zealand	U.S.S.R.
*Greece	Poland	*Yugoslavia

The Draft ISO Recommendation was then submitted by correspondance to the ISO Council, which decided, in August 1959, to accept it as an ISO RECOMMENDATION.

* These Member Bodies stated that they had no objection to the Draft being approved.

ISO Recommendation R 119 August 1959

PLASTICS

DETERMINATION OF FREE PHENOLS IN PHENOL-FORMALDEHYDE MOULDINGS

1. SCOPE

1.1 This method of test gives a semi-quantitative measure of the amount of free phenols in phenol-formaldehyde mouldings by determining the amount of iodine absorbed by a hot aqueous extract of a powdered moulding. It is not intended as an absolute measure of the free phenols present.

1.2 The amount of free phenols in a moulded article is influenced to a major extent by the degree of cure. Its evaluation is also of interest where the possibility of contamination of foodstuffs or other materials has to be considered.

2. APPARATUS

The apparatus consists of the following:

(*a*) Means for reducing the mouldings to a powder,
(*b*) Sieve with apertures of 0.2 to 0.3 mm,*
(*c*) Balance to weigh to 0.01 g,
(*d*) 250 ml glass-stoppered flask,
(*e*) Sintered glass crucible of medium porosity,
(*f*) Pipettes—5 ml and 10 ml,
(*g*) 100 ml glass-stoppered flask,
(*h*) Burette.

3. REAGENTS

The following reagents are required:

(1) N/20 iodine solution,**
(2) Sodium tetraborate ($Na_2B_4O_7 \cdot 10H_2O$, Borax),
(3) 2N sulphuric acid,
(4) N/20 sodium thiosulphate,
(5) Starch solution.

4. PREPARATION OF SAMPLE

A sample of the moulded material is reduced to a powder by any convenient means, care being taken to avoid overheating. That portion which will pass through a sieve of nominal aperture 0.2 to 0.3 mm is used for test. The sample is kept in a tightly stoppered flask until required for test.

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* Standardization of sieve openings is now under study by Technical Committee ISO/TC 24, *Sieves*. If the values specified for sieve openings in the present ISO Recommendation are not included in the ISO Recommendation which will have been drawn up for sieve openings, Technical Committee ISO/TC 61, *Plastics*, will reconsider the present specification.

** The N/20 iodine solution may be prepared by dissolving 6.35 g of iodine in approximately 40 ml of a 50 per cent solution of potassium iodide and diluting to 1 000 ml with distilled water.