UDC 678.01

Ref. No.: ISO/R 173-1961 (E)

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION
R 173

PLASTICS

DETERMINATION OF THE PERCENTAGE OF STYRENE IN POLYSTYRENE WITH WIJS SOLUTION

1st EDITION
February 1961

Printed in Switzerland

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

BRIEF HISTORY

The ISO Recommendation R 173, *Determination of the Percentage of Styrene in Polystyrene with Wijs Solution*, was drawn up by Technical Committee ISO/TC 61, *Plastics*, the Secretariat of which is held by the American Standards Association, Incorporated (ASA).

Work on this matter which the Technical Committee had begun since 1954, came to an end in 1956, with the adoption of a proposal as a Draft ISO Recommendation.

On 28 November 1958, the Draft ISO Recommendation (No. 188) was distributed to all the ISO Member Bodies and was approved, subject to some editorial amendments, by the following Member Bodies:

Australia	Hungary	Romania
Austria	India	Spain
Belgium	Israel	Sweden
Bulgaria	Italy	Switzerland
Burma	Japan	Turkey
Czechoslovakia	Netherlands	United Kingdom
France	Poland	U.S.A.
Germany	Portugal	U.S.S.R.

No Member Body opposed the approval of the Draft.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in February 1961, to accept it as an ISO RECOMMENDATION.

ISO Recommendation R 173 February 1961

PLASTICS

DETERMINATION OF THE PERCENTAGE OF STYRENE IN POLYSTYRENE WITH WIJS SOLUTION

1. SCOPE

The purpose of this ISO Recommendation is to describe a procedure for determining the percentage of monomeric styrene and other unsaturated compounds in unmodified polystyrene by measuring the degree of unsaturation of polystyrene with iodine monochloride, the results being expressed as monomeric styrene.

The test supplements the method for the determination of percentage methanol soluble matter of polystyrene, as it usually shows whether a high value of methanol soluble matter is due to a high styrene content or to the presence of substances other than styrene, e.g. lubricant.

2. APPARATUS

The apparatus consists of the following:

2.1 *Means* of reducing the material to a powder.

2.2 *Sieve* with apertures 1.5 to 2.0 mm square.

2.3 *Graduated flask*, 250 ml.

2.4 *Bottle*, glass-stoppered, of about 500 ml capacity.

2.5 *Balance* to weigh to 0.001 g.

3. REAGENTS

The following reagents are required:

3.1 Potassium iodide, 10 per cent solution, free from iodates.

3.2 Sodium thiosulphate solution, approximately 0.1N.

3.3 Starch solution, 1 per cent.

3.4 Carbon tetrachloride.

3.5 Wijs solution, prepared by dissolving 8 ± 1 g of iodine trichloride and 9 ± 0.1 g of iodine in a mixture of 300 ml of carbon tetrachloride and 700 ml of glacial acetic acid. Iodine monochloride may be used in place of iodine trichloride.

The solution, which should be of a dark colour, is then filtered and stored in a dark cupboard. It should not be used within three days of its preparation.