# INTERNATIONAL STANDARD 118

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

# Plastics — Polystyrene — Determination of methanol-soluble matter

*Matières plastiques — Polystyrène — Détermination des matières solubles dans le méthanol*

First edition — 1976-08-01



To be withdrawn

UDC 678.746.22 : 543.832

Ref. No. ISO 118-1976 (E)

**Descriptors** : plastics, thermoplastic resins, chemical analysis, determination of content, polystyrene, solubility, carbinols.



Price based on 2 pages

## FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; these documents are now in the process of being transformed into International Standards. As part of this process, Technical Committee ISO/TC 61 has reviewed ISO Recommendation R 118 and found it technically suitable for transformation. International Standard ISO 118 therefore replaces ISO Recommendation R 118-1959 to which it is technically identical.

ISO Recommendation R 118 was approved by the Member Bodies of the following countries :

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

No Member Body expressed disapproval of the Recommendation.

No Member Body disapproved the transformation of ISO/R 118 into an International Standard.





Printed in Switzerland

# Plastics — Polystyrene — Determination of methanol-soluble matter

## 1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a gravimetric method for the determination of the amount of methanol-soluble matter in unmodified polystyrene.

The methanol-soluble matter may consist of monomer or a mixture of monomer with any soluble lubricant or colouring matter which may be present in the polystyrene. The presence of mineral pigments, emulsifying agents or lubricants may interfere with the test by making filtration difficult.

## 2 PRINCIPLE

Dissolution of a test portion, in powder form if necessary, in a suitable solvent. Hot precipitation of polystyrene by methanol. Drying to constant mass and weighing of the dry precipitate. The loss in mass of the test portion corresponds to the amount of methanol-soluble matter.

## 3 REAGENTS

During the analysis, only use reagents of recognized analytical quality.

**3.1 Dioxane**, or **propylene oxide**, or **methyl ethyl ketone.**

**3.2 Methanol**, redistilled.

## 4 APPARATUS

Ordinary laboratory apparatus and

**4.1 Device** for reducing the material to a powder.

**4.2 Sieve**, with nominal apertures of 1 250 to 2 000 $\mu$m, conforming to ISO 565*.

**4.3 Analytical balance**, accurate to 0,000 1 g.

**4.4 Oven**, capable of being controlled between 65 and 70 °C.

**4.5 Desiccator**, containing phosphorus(V) oxide or any other desiccant giving the same results.

**4.6 Sintered glass filter crucible** of low porosity.

**4.7 Beaker**, 50 ml capacity, with **watch glass** as cover.

**4.8 Beaker**, 400 ml capacity.

NOTE — All glassware shall be thoroughly washed with benzene or toluene, rinsed with acetone and dried before use. The sintered glass crucible (4.6) shall be heated for at least 1 h in the oven (4.4) at 65 to 70 °C and stored in the desiccator (4.5) until required.

## 5 PREPARATION OF SAMPLE

Use a fully representative sample of the polystyrene. If necessary to facilitate solution, reduce the sample to a powder which will pass through the sieve (4.2), using the device (4.1).

## 6 PROCEDURE

**6.1** Test two portions of the material (clause 5).

**6.2** Weigh a test portion of 0,3 to 0,5 g of the ground sample to the nearest 0,000 1 g, transfer to the beaker (4.7), and add 15 to 30 ml of solvent (3.1). Cover the beaker with the watch glass and allow to stand until the test portion has completely dissolved.

**6.3** In the meantime cool 200 to 250 ml of methanol (3.2) to a temperature of approximately 15 °C in the beaker (4.8). Stir the methanol rapidly with a glass rod and, while it is still in motion, add a small portion of the polystyrene solution down the glass rod and continue stirring. Make further additions of the solution, continuing the stirring, until it has all been added to the methanol. Rinse the beaker (4.7) three times with portions of the solvent (3.1), each of approximately 2 ml, collecting the rinsings in the beaker (4.8). To assist coagulation of the precipitate, warm the mixture to a temperature not exceeding 65 °C, while stirring, and then allow the precipitate to settle for a few minutes.

* ISO 565, *Test sieves — Woven metal wire cloth and perforated plate — Nominal sizes of apertures.*