

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

**ISO RECOMMENDATION
R 869**

PLASTICS

PREPARATION OF SPECIMENS
FOR OPTICAL TESTS ON PLASTICS MATERIALS

MOULDING METHOD

1st EDITION

November 1968

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Printed in Switzerland

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

PLASTICS
PREPARATION OF SPECIMENS
FOR OPTICAL TESTS ON PLASTICS MATERIALS
MOULDING METHOD

1. SCOPE

This ISO Recommendation describes a method for moulding plastics specimens for optical tests.

NOTE. – The preparation of specimens for optical tests by casting is the subject of ISO Recommendation R 870, *Plastics – Preparation of specimens for optical tests on plastics materials – Casting method*.

2. APPARATUS

The type of mould recommended is shown in the Figure below. It consists of the following parts :

- (a) two plates of glass with plane surfaces at least as good as those of photographic plates. A borosilicate glass resistant to thermal shock is recommended. The dimensions of the plates should not exceed those of the press platens;
- (b) a stainless steel frame about 4 mm thick;
- (c) two sheets of aluminium about 1 mm thick, placed between the glass plates and the press platens so as to distribute the pressure. The insertion of a sheet of firm blotting paper between the glass plates and the aluminium sheets is recommended.

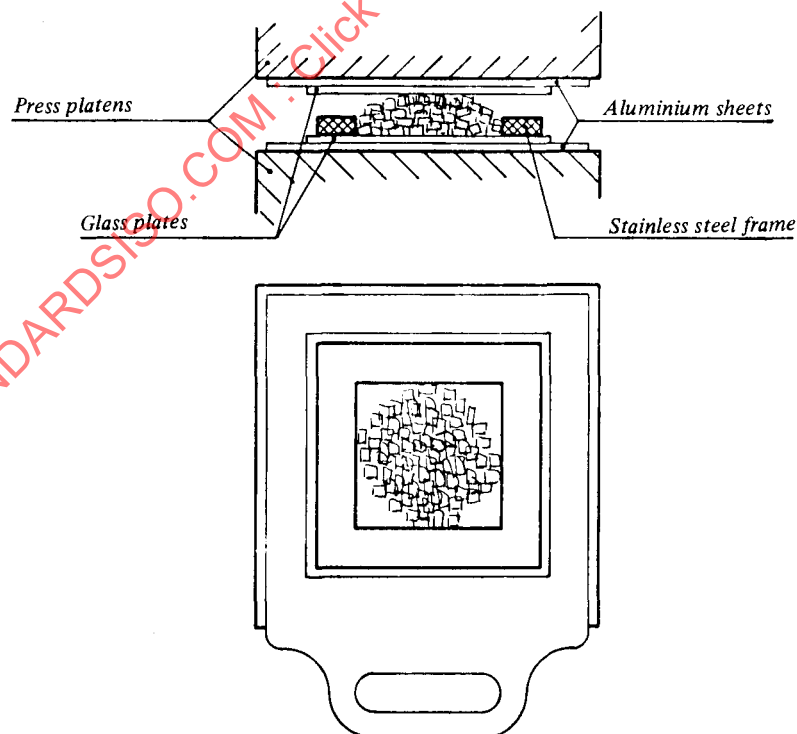


FIGURE – Mould for the preparation of test specimens for optical tests

3. PROCEDURE

- 3.1 After cleaning the plates carefully, assemble the mould as shown in the Figure.
- 3.2 Pour the appropriate quantity of the plastics material (about 10 % in excess of that needed to produce a test specimen of the required thickness) into the cavity in such fashion that the entire bottom of the cavity is covered.

Then assemble the mould and place it between the platens of a suitable press; the platens must be plane and parallel.
- 3.3 Raise the temperature slowly to that required for the plastics material being moulded and apply the minimum pressure necessary for such time as is required to produce a sound test specimen.
- 3.4 Then cool the assembly gradually, under pressure (to avoid the formation of surface irregularities), and open the mould to remove the sheet of the material.
- 3.5 It is inadvisable to use release agents between the glass and the plastics material because of the risk of altering the optical properties of the plastics surface. In some cases, however, a foil of polytetrafluoroethylene or polypropylene with a very smooth surface may be used on condition that the optical surface of the test specimen is not changed.
- 3.6 The separation of the glass plates from the plastics material is usually facilitated by the difference in their coefficients of expansion. If necessary, the assembly may be cooled to below ambient temperature. If moisture has no deleterious effect on the material being moulded, immersion of the sandwich in water may be used to facilitate separation of the test specimen from the mould surface. If absolutely necessary, the glass plates may be broken and the fragments removed with a small tool.
- 3.7 Then cut test specimens of the required dimensions from the sheet of cured plastics material.

NOTES

1. The proposed method is a specialized application of the general method given in ISO Recommendation R 293, *Compression moulding test specimens of thermoplastic materials*.
2. It is recommended that reference be made to ISO Recommendation R 293 for any other details not given in the above method.

4. REPORT

The report should include the following information :

- (1) date and location of preparation of test specimens;
- (2) complete identification of material moulded;
- (3) details of
 - (a) moulding temperature,
 - (b) moulding pressure,
 - (c) physical form of moulding material,
 - (d) the kind of pre-treatment (if any);
- (4) reference to this ISO Recommendation;
- (5) any other relevant details.