INTERNATIONAL STANDARD

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# Plastics — Thermosetting moulding materials — Determination of transfer flow

*Plastiques — Matières à mouler thermodurcissables — Détermination de la fluidité par transfert*

Reference number
ISO 7808:1992(E)

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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# Plastics — Thermosetting moulding materials — Determination of transfer flow

## 1 Scope

This International Standard specifies a method for measuring the transfer flow of thermosetting moulding materials during a specified moulding process. It is intended only for production control and should not be used as part of a mandatory material specification.

## 2 Principle

The method determines the percentage mass of moulding material that is transferred through two apertures in the punch of a disc mould during a moulding process carried out under defined conditions.

## 3 Apparatus

**3.1 Balance**, to weigh 50 g to within ± 0,1 g.

**3.2 Hydraulic press**, with a capacity of at least 125 kN, fitted with a controlled variable pressure-reducing valve. The press closing time, between loading the powder into the mould until pressure first shows on the gauge, shall not exceed 10 s.

The final speed of closure shall be adjusted so as to avoid displacement of powder from the mould.

**3.3 Moulding tool** (see figure 1), the moulding cavity of which has a diameter of 90 mm and a depth of 25 mm ± 5 mm (the depth of the cavity may be increased if necessary to accommodate bulky materials). The punch shall have two recesses 2,45 mm ± 0,01 mm deep and 7,5 mm ± 0,5 mm high diametrically opposite each other; their profile is shown in detail A of figure 1.

The clearance between the male and female mould parts shall not exceed 0,05 mm (moulds wear with use and the tolerance should be checked frequently).

## 4 Test portion

The test portion shall be a 50 g ± 0,5 g portion of a sample of the moulding material to be tested.

## 5 Procedure

**5.1** Adjust the temperature of the mould (see 3.3) to the value specified in table 1 for the particular material to be tested.

**Table 1 — Moulding temperatures**

Temperatures in degrees Celsius

| Material | Moulding temperature |
|---|---|
| Phenolic | 165 ± 2 |
| Granular polyester | 165 ± 2 |
| Epoxy | 165 ± 2 |
| Diallyl phthalate | 165 ± 2 |

**5.2** Preset the moulding pressure to 7 MPa ± 0,2 MPa, 12 MPa ± 0,5 MPa or 19 MPa ± 0,5 MPa, chosen so that the measured transfer flow falls within the range 15 % to 85 %.

**5.3** Place the test portion (see clause 4) inside the mould cavity and immediately close the press (3.2).

**5.4** Allow sufficient time for the material to cure, open the press, remove the moulding, detach the extrudate, allow the moulding to cool to room temperature and then weigh it to the nearest 0,1 g.

**5.5** Calculate the transfer flow of the test portion as described in 6.1. Repeat the test until the numerical values of two consecutive transfer flows so obtained do not differ by more than 10 % of the numerical value of their mean.

## 6 Expression of results

**6.1** Calculate the transfer flow of the test portion as the percentage mass of material that is transferred through the punch during the moulding operation, using the formula:

$$\frac{50 - m}{50} \times 100$$

where $m$ is the mass, in grams, of the moulding.

**6.2** Express the mean of the two valid determinations as the transfer flow of the material under test.

## 7 Test report

The test report shall contain the following particulars:

a) a reference to this International Standard;

b) all details necessary for complete identification of the material tested;

c) the mould temperature used;

d) the moulding pressure used;

e) the time of flow;

f) the transfer flow, as a percentage.

Dimensions in millimetres

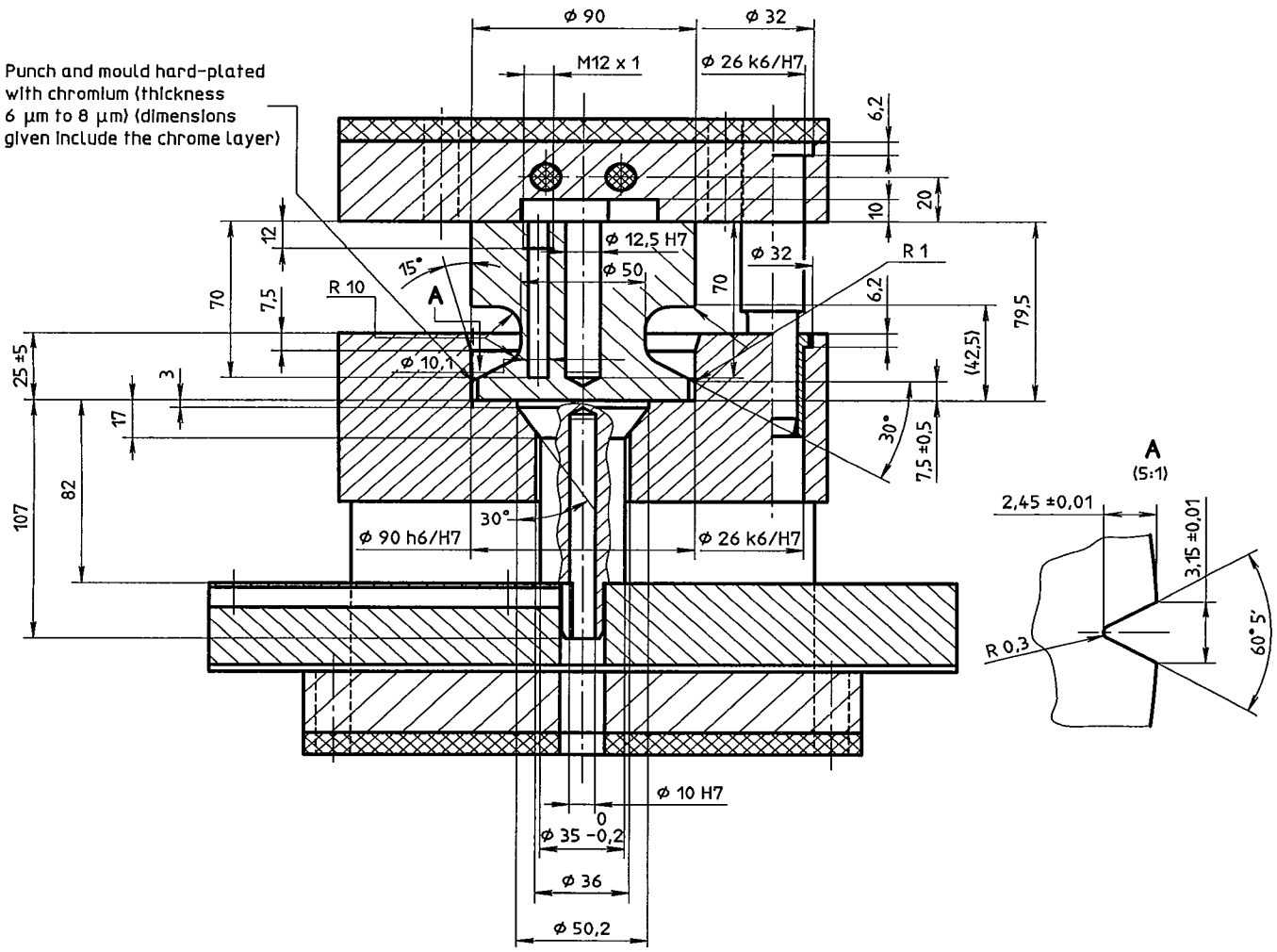


**Figure 1 — Moulding tool**

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**Descriptors:** plastics, thermosetting materials, thermosetting resins, moulding materials, tests, determination, fluidity.

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