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# International Standard



# 6186

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

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## Plastics — Determination of pourability

*Plastiques — Détermination de l'aptitude à l'écoulement*

First edition — 1980-08-01

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ISO 6186:1980

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UDC 678.743.22-13 : 658.01 : 539.215.9

Ref. No. ISO 6186-1980 (E)

Descriptors : plastics, homopolymers, copolymers, resins, vinyl chloride, tests, flow time, measurement.

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.

International Standard ISO 6186 was developed by Technical Committee ISO/TC 61, *Plastics*, and was circulated to the member bodies in October 1978.

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It has been approved by the member bodies of the following countries :

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Finland	Netherlands	USSR
France	New Zealand	

No member body expressed disapproval of the document.

# Plastics — Determination of pourability

## 1 Scope and field application

This International Standard specifies a method for determining the pourability of plastics in powdered and granular form by measuring flow time through a funnel.

NOTE — The method described is not applicable to all plastics in powdered and granular form. Consequently the International Standards for each type of plastic material, Part 2 : *Determination of properties*, should be consulted to establish whether or not the method should be used.

## 2 Reference

ISO 60, *Plastics — Determination of apparent density of material that can be poured from a specified funnel*.

## 3 Definition

**flow time** : The time taken for a defined mass of the test material to flow through a funnel of specified dimensions. It is indicated in seconds.

## 4 Principle

Measurement of the time taken for a defined mass of the test material to flow through a funnel of specified dimensions.

## 5 Apparatus

**5.1 Funnel**, of the shape and dimensions shown in the figure, made of metal, for example stainless steel, and having the inside surface carefully polished. It shall be fitted with a means of closing the outlet (for example a metal plate). The funnel shall be earthed to discharge electrostatic charges.

**5.2 Funnel support**, to hold the axis of the funnel vertically, for example a metal ring fixed to a vertical support.

**5.3 Stop watch**, accurate to 0,1 s, or an alternative means of measuring time with the same accuracy.

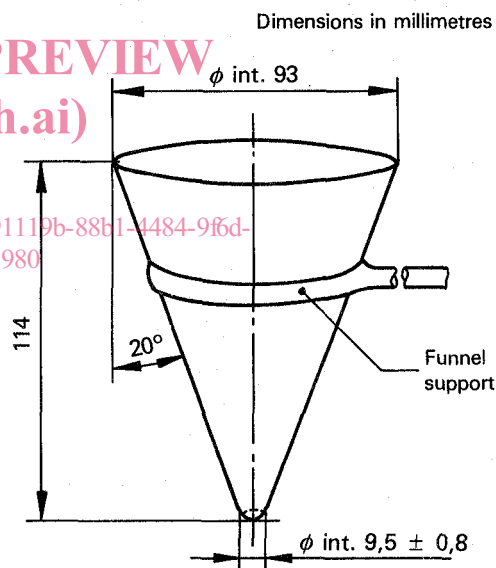


Figure — Test funnel and support

## 6 Procedure

**6.1** Unless otherwise specified, material shall be tested as received under ambient atmospheric conditions.

If the test atmosphere can affect the results, it may be specified that the sample be conditioned for 24 h in the standard atmosphere ( $23 \pm 1$  °C,  $50 \pm 5$  % relative humidity) and tested in the same atmosphere.

**6.2** Close the funnel outlet with the closing device. Pour into it a mass of the test sample, weighing, in grams, 100 times its apparent density in grams per millilitre (see ISO 60). Pour onto the inside wall of the funnel to prevent compaction.

Remove the closing device rapidly and simultaneously start the stop watch. Allow the material to flow freely and stop the stop watch at the instant that all the material has flowed through the outlet.

NOTE — Mechanical means, such as punching the product compacted in the funnel outlet with a glass rod, tapping the outside wall of the funnel, etc., should not be used to start the flow. If the material does not flow because of electrostatic charge, the test may be repeated with the addition of a small amount of gamma aluminium oxide<sup>1)</sup> or carbon black or a few millilitres of ethanol, recording in the test report the type and amount of antistatic agent added.

6.3 Make three determinations under the same conditions, using three different test portions.

## 7 Expression of results

Calculate the mean of the three determinations.

Express the flow time in whole seconds, for example :

Flow time : 37 s.

NOTE — If an antistatic agent has been added, indicate this with the result.

Indicate the manner in which the material flows, using the following terms :

- flows uniformly;
- flows intermittently;
- does not flow under the test conditions.

## 8 Test report

The test report shall include the following particulars :

- a) reference to this International Standard;
- b) complete identification of the material tested;
- c) test atmosphere and, if applicable, conditioning atmosphere;
- d) the individual results and their mean value, and the manner in which the material flows;
- e) type and amount of antistatic agent added, if applicable.

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1) Suitable material is available commercially. Details may be obtained from either the secretariat of ISO/TC 61 (ANSI) or from the ISO Central Secretariat.