
**Plastics — Poly(vinyl chloride) pastes —
Determination of apparent viscosity using
the Severs rheometer**

*Plastiques — Pâtes de poly(chlorure de vinyle) — Détermination de la
viscosité apparente au rhéomètre Severs*



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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 4575 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 9, *Thermoplastic materials*.

This third edition cancels and replaces the second edition (ISO 4575:1985), which has been technically revised.

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Plastics — Poly(vinyl chloride) pastes — Determination of apparent viscosity using the Severs rheometer

1 Scope

This International Standard specifies a method for determining the apparent viscosity, at high shear, of poly(vinyl chloride) (PVC) pastes prepared from PVC paste polymers and plasticizers, using the Severs rheometer.

It applies in particular to “standard pastes” prepared in accordance with ISO 4612 or ISO 11468.

2 Principle

A sample of the paste is placed in a Severs rheometer and the jacket set to a defined temperature. The flow rate of the paste through a calibrated die is measured at different pressures. The shear rate and apparent viscosity are calculated for each flow rate corresponding to each of the pressures applied. Optionally, a graph of apparent viscosity as a function of the shear rate can be prepared.

3 Apparatus

3.1 Severs rheometer, of capacity 500 ml to 1 000 ml, of one of the two basic designs shown in Figure 1, and consisting essentially of the following components:

3.1.1 Measuring vessel, for example a stainless-steel or bronze cylinder with polished internal surfaces to which can be fixed both a base having an orifice in which can be placed a die, and a cover which can be connected to the source of pressure or to the atmosphere. The whole shall be airtight.

3.1.2 Jacket, connected to a system for temperature control which allows the contents of the body of the measuring vessel to be maintained at a temperature of $(23 \pm 0,5) ^\circ\text{C}$.

3.1.3 Non-deformable die, for example of stainless steel or PTFE, consisting of a cylindrical tube which can be fitted in airtight fashion to the bottom of the measuring vessel. The outer and internal surfaces of the tube shall be polished. The die is defined by the diameter and the height of the tube. Two dies, A and B, are specified in the application of this International Standard. The dimensions of the dies are given in Table 1.

Table 1 — Dimensions of the dies

Dimensions in millimetres

Dimension	Die A	Die B
Radius of tube	$1,5 \pm 0,05$	$1,5 \pm 0,05$
Height	$45 \pm 0,5$	$22,5 \pm 0,5$

3.1.4 Piston (if necessary), of rigid plastic material with a diameter slightly less than that of the measuring vessel to prevent the fluid, under pressure, from passing directly through the die in the case of pastes which cavitate. (Its use also simplifies the cleaning of the instrument.) A sketch of the piston is given in Figure 2.