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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 21989-2008

Replacing GB/T 12004.3-1989

**Plastics -- Poly (vinyl chloride) pastes -- Determination of
apparent viscosity using the severs rheometer**

塑料 聚氯乙烯糊 用Severs流变仪测定表观黏度

(English Translation)

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Foreword

This standard is identical with ISO 4575:2007 "Determination of apparent plastic PVC paste with Severs rheometer viscosity" (in English).

For ease of use, this standard made the following editorial changes.

- a) "this International Standard" be replaced by "this standard";
- b) use a decimal point instead of a decimal comma " , " . " , " ;
- c) Remove the preface to the international standards.

This standard replaces GB/T 12004.3-1989 "PVC plastisol apparent viscosity measurement method." this standard GB/T 12004.3-1989 and main technical differences are as follows.

- Modify the standard English name;
- Deleted (chapter 2 of the 1989 edition) chapter "Reference Standards";
- Modify the "result of the calculation and that" a chapter in the formula representation (1989 edition, Chapter 6; Chapter 5 and Chapter 6 of this edition);
- Increased (first edition chapter 7) chapter "test report";
- Added Appendix A "non-Newtonian fluid calculation formula." Appendix A of this standard is an informative annex.

The standard proposed by China Petroleum and Chemical Industry Association.

This standard by the National Standardization Technical Committee of plastic PVC resin product Club (SAC/TC15/SC7) centralized.

This standard was drafted. Jinxi Chemical Industry Research Institute, Wuhan Xianglong Electric Co., Ltd..

1 Scope

This standard specifies the use of poly Severs rheometer at a high shear rate of polyvinyl chloride (PVC) resin and plasticizer prepared Vinyl plastisol apparent viscosity method.

This standard is particularly suitable for press GB/T 21991 "plastic test polyvinylchloride (PVC) paste prepared in a planetary mixer Law" or GB/T 16613 "test polyvinyl chloride (PVC) paste prepared disperser Law" prepared "standard plastisol." Principle 2 Plasticized paste sample into the Severs rheometer, and the jacket was adjusted to a predetermined temperature.

Measured under different pressures plastisol flows through the die of the corrected flow rate.

Calculated at a shear rate of each flow rate corresponding to each administration under pressure and apparent viscosity.

Apparent viscosity can also be made to the appropriate function of shear rate. FIG.

3 Devices

3.1

Severs rheometer capacity (500 ~ 1000) mL. One of the two basic structures shown in FIG. It consists of the following sections composition.

3.1.1

measuring cylinder, for example, stainless steel or bronze polished inner wall of the cylinder. It not only can be installed on a perforated base in the hole You can place a die but also can be fitted with a lid or a pressure source connected to the atmosphere. The entire device should be airtight.

3.1.2

jacket connected to a temperature control system that allows the temperature measuring cylinder contents was maintained at $(23 \pm 0.5) ^\circ\text{C}$.

3.1.3

deformation of the die, such as stainless steel or polytetrafluoroethylene (PTFE) is made by a measurement it can be closely mounted to the bottom of the tube Tube composition. Tube inner and outer walls should be polished. The die is determined by the height and diameter of the pipe. When using this standard test, it requires the use of A, B Two kinds of the die, the die dimensions given in Table 1.

Table 1 die size in millimeters

A die die size B

Tube radius 1.5 ± 0.05 1.5 ± 0.05 High 45 ± 0.5 22.5 ± 0.5 3.1.4 piston (if required), made of rigid plastic material, having a diameter slightly smaller than the measuring cylinder was used to prevent the paste produced in the case of holes, the gas Direct flow under pressure through a die (It also allows the use of equipment cleaning simplification). Figure 2 shows a

schematic view of the piston.

3.1.5

pressurizing means by compressed nitrogen gas cylinders, buffer tanks and a number of valves with integral pressure gauge, Figure 3 shows a schematic diagram.

3.2

beakers, capacity of about 50mL.

3.3

stopwatch, accurate to 0.1s.

3.4

Balance, accurate to 0.5g.

3.5

thermometer for measuring $(23 \pm 0.5) ^\circ\text{C}$ of temperature.

GB/T 21989-2008/ISO 4575:2007