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

GB/T 3682-2000

**Determination of the melt mass-flow rate (MFR) and the melt
volume-flow rate (MVR) of thermoplastics**

(English Translation)

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1 Scope

1.1

This Standard specifies a method for the determination of the melt mass-flow rate (MFR) and the melt volume-flow rate (MVR) of thermoplastic materials under specified conditions of temperature and load. Normally, the test conditions for measurement of melt flow rate are specified in the material standard with a reference to this Standard. The test conditions normally used for thermoplastics are listed in annexes A and B. The melt volume-flow rate will normally be found useful when comparing filled and unfilled thermoplastics. The melt flow rate can now be determined by automatic measurement provided the melt density at the test temperature is known.

This method is not applicable to thermoplastics for which the rheological behaviour is affected by phenomena such as hydrolysis, condensation or crosslinking.

1.2

The melt mass-flow rate and melt volume-flow rate of thermoplastics are dependent on the rate of shear. The rates of shear in this test are much smaller than those used under normal conditions of fabrication, and therefore data obtained by this method for various thermoplastics may not always correlate with their behaviour in actual use. Both methods are useful in quality control.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below.

GB/T 1031-1995 Surface roughness parameters and their values (neq ISO 468:1982)

3.1 Basic apparatus

3.1.1

The apparatus is basically an extrusion plastometer operating at a fixed temperature. The general design is as shown in figure 1. The thermoplastic material, which is contained in a vertical cylinder, is extruded through a die by a loaded piston. The

Annex B (Informative)

Conditions in use for the designation of standards for thermoplastic materials

Table B.1 indicates test conditions that are currently specified in relevant standards. Other test conditions not listed here may be used, if necessary, for a particular material.

Table B.1

Materials

Conditions (code letter)

Test temperature, θ , °C

Nominal load (combined), m_{nom} , kg

PS H 200 5.00

PE

PE

PE

PE

190

190

190

190

2.16

0.325

21.60

5.00

PP M 230 2.16

ABS U 220 10.00

PS-1 H 200 5.00

E/VAC

E/VAC

E/VAC

150

190

125

2.16

2.16

0.325

SAN U 220 10.00

ASA, ACS, AES U 220 10.00

PC W 300 1.20

PMMA N 230 3.80

PB

PB

190

190

2.16

10.00

POM D 190 2.16

MABS U 220 10.00

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