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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

中华人民共和国国家标准

GB/T 3682-2000

idt ISO 1133: 1997

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

热塑性塑料熔体质量流动速率和熔体体积流动速率的测定

Issued on October 27, 2000 Implemented on May 01, 2001

Issued by the State Bureau of Quality Technical Supervision

Contents

Foreword

This Standard is identical to International Standard ISO 1133:1997 Plastics-Determination of the Melt Mass-flow Rate (MFR) and the Melt Volume-flow Rate (MVR) of Thermoplastics. This Standard is identical to ISO 1133:1997 in technical aspects, and has the following differences in edition:

- The normative references of this Standard is less than that specified in ISO 1133: 1997, but the contents not listed in this Standard do not affect the implementation of this standard;
- There make some editorial changes according to relevant regulations of China.
- The previous edition of this Standard is national standard GB/T 3682-1983 Determination of the Melt Flow Rate of Thermoplastics. There have been some significant changes in this Standard over its previous edition:
- The name of the Standard is changed;
- “Normative references” are added;
- The test conditions are made to be “informative annex”, and additions and deletions are made;
- The automatic testing of the melt mass-flow rate of and the determination of the melt volume-flow rate of thermoplastics are added.

This Standard will replace GB/T 3682-1983 from the implementation date of this Standard.

Annex A of this Standard is normative, and annex B informative.

This Standard was proposed by the National Petroleum and Chemical Industry Bureau of the People’s Republic of China.

This Standard is under the jurisdiction of the Sub-committee on Plastic Resin Products of the National Technical Committee 15 on Plastic of Standardization Administration of China (TC 15/SC 4).

Units responsible for drafting this Standard: Shanghai Entry-Exit Inspection and Quarantine Bureau, Shanghai Research Institute of Plastics.

Units participating in drafting this standard: Chenguang Chemical Institute, Yanshan Resin Application Institute, Beijing, Sinopec Shanghai Petrochemical Co., Ltd Plastics Factory, Jilin University Science Education Instrument Factory, and Chengde Tester Co., Ltd.

Main drafters of this Standard: Li Jianghai, Shen Hong, Shu Xingtao, Luo Taiwei, Jiang Haining, Tai Yuxing, and Zhao Lingyun.

This Standard is first issued in 1983.

ISO 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.

International Standard ISO 1133 was prepared by Technical Committee ISO/TC 61, Plastics, Subcommittee SC 5, Physical-chemical properties.

This third edition cancels and replaces the second edition (ISO 1133:1991), which has been technically revised to include the flow rate ratio (FRR). In addition the text has been revised to improve clarity.

Annex A forms an integral part of this Standard. Annex B is for information only.

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

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 International 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 International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International 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)

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