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BS EN ISO 1133-1:2011



BSI Standards Publication

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

Part 1: Standard method (ISO 1133-1:2011)

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This British Standard is the UK implementation of EN ISO 1133-1:2011. Together with BS EN ISO 1133-2:2011, it supersedes BS EN ISO 1133:2005, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PRI/21, Testing of plastics.

A list of organizations represented on this committee can be obtained on request to its secretary.

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English Version

Plastics - Determination of the melt mass-flow rate (MFR) and
melt volume-flow rate (MVR) of thermoplastics - Part 1:
Standard method (ISO 1133-1:2011)

Plastiques - Détermination de l'indice de fluidité à chaud
des thermoplastiques, en masse (MFR) et en volume
(MVR) - Partie 1: Méthode normale (ISO 1133-1:2011)

Kunststoffe - Bestimmung der Schmelze-Massefließrate
(MFR) und der Schmelze-Volumenfließrate (MVR) von
Thermoplasten - Teil 1: Allgemeines Prüfverfahren (ISO
1133-1:2011)

This European Standard was approved by CEN on 30 November 2011.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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Foreword

This document (EN ISO 1133-1:2011) has been prepared by Technical Committee ISO/TC 61 "Plastics" in collaboration with Technical Committee CEN/TC 249 "Plastics" the secretariat of which is held by NBN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2012, and conflicting national standards shall be withdrawn at the latest by June 2012.

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

This document supersedes EN ISO 1133:2005.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

Endorsement notice

The text of ISO 1133-1:2011 has been approved by CEN as a EN ISO 1133-1:2011 without any modification.

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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 1133-1 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 5, *Physical-chemical properties*.

This first edition of ISO 1133-1 cancels and replaces ISO 1133:2005. It also incorporates the Technical Corrigendum, ISO 1133:2005/Cor.1:2006.

In this part of ISO 1133, changes have been made to accommodate ISO 1133-2. In addition: Clause 3 includes further definitions relevant to both parts of ISO 1133; 5.1.3 specifies the lower edge of the piston head; 5.1.4 updates temperature tolerances; 5.2.1.7 on a preforming device has been added; 5.2.2.2 includes revised cut-off timing accuracy; 8.3 provides cut-off time intervals that are consistent with other specifications in this part of ISO 1133; 8.5.3 and 9.6.3 have been included on expression of half die results; 9.3 provides minimum piston displacements that are consistent with other specifications in this part of ISO 1133; Annex B has been simplified to avoid inconsistencies between this and the materials specification standards; Annex C, has been added for the preparation of charges of material that is particularly suited to testing flake or other large aspect ratio particles; Annex D has been added to provide precision data from an intercomparison on a high MVR/MFR material.

This part of ISO 1133 applies to melt flow rate testing broadly equivalent to that of ISO 1133:2005. ISO 1133-2 applies to the testing of polymers that are rheologically sensitive to the time-temperature history to which they are subjected during melt flow rate testing.

ISO 1133 consists of the following parts, under the general title *Plastics — Determination of the melt mass-flow rate (MFR) and melt volume-flow rate (MVR) of thermoplastics*:

- *Part 1: Standard method*
- *Part 2: Method for materials sensitive to time-temperature history and/or moisture*

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Introduction

For stable materials that are not rheologically sensitive to the time-temperature history experienced during melt flow rate testing, this part of ISO 1133 is recommended.

For materials whose rheological behaviour is sensitive to the test's time-temperature history, e.g. materials which degrade during the test, ISO 1133-2 is recommended.

NOTE At the time of publication, there is no evidence to suggest that the use of ISO 1133-2 for stable materials results in better precision in comparison with the use of this part of ISO 1133.

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