SLOVENSKI STANDARD
SIST ISO 4440-1:1995

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Plastomerne cevi in fitingi - Določanje masnega pretoka taline - 1. del: Preskusna metoda

Thermoplastics pipes and fittings -- Determination of melt mass-flow rate -- Part 1: Test method

Tubes et raccords en matières thermoplastiques -- Détermination de l'indice de fluidité à chaud en masse -- Partie 1: Méthode d'essai

Ta slovenski standard je istoveten z: **ISO 4440-1:1994**

ICS:

23.040.20	Cevi iz polimernih materialov	Plastics pipes
23.040.45	Fitingi iz polimernih materialov	Plastics fittings

SIST ISO 4440-1:1995 **en**

INTERNATIONAL STANDARD

ISO 4440-1

First edition
1994-10-01

Thermoplastics pipes and fittings — Determination of melt mass-flow rate —

Part 1:

Test method

Tubes et raccords en matières thermoplastiques — Détermination de l'indice de fluidité à chaud en masse —

Partie 1: Méthode d'essai

Reference number
ISO 4440-1:1994(E)

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 4440-1 was prepared by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, Subcommittee SC 5, *General properties of pipes, fittings and valves of plastic materials and their accessories — Test methods and basic specifications*.

This first edition of ISO 4440-1, together with ISO 4440-2:1994, cancels and replaces ISO 4440:1980, which has been technically revised.

ISO 4440 consists of the following parts, under the general title *Thermoplastics pipes and fittings — Determination of melt mass-flow rate*:

— *Part 1: Test method*

— *Part 2: Test conditions*

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Thermoplastics pipes and fittings — Determination of melt mass-flow rate —

Part 1:
Test method

1 Scope

This part of ISO 4440 specifies a method for determining the melt mass-flow rate (MFR) of polyolefin materials made into pipes or fittings.

It is applicable to all polyolefin materials characterized by such methods, as detailed in ISO 4440-2.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 4440. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 4440 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 1133:1991, *Plastics — Determination of the melt mass-flow rate (MFR) and the melt volume-flow rate (MVR) of thermoplastics.*

ISO 4440-2:1994, *Thermoplastics pipes and fittings — Determination of melt mass-flow rate — Part 2: Test conditions.*

3 Principle

The mass of material is determined which passes through a die of given diameter, under a specified pressure and at a constant temperature, during a predetermined time.

4 Apparatus

4.1 Extrusion plastometer, complying with ISO 1133.

5 Test samples

The test samples shall comprise of granules in the approximate form of 3-mm-sided cubes, produced by cutting or grinding a piece of the pipe or fitting for which the melt-flow rate is to be measured.

6 Procedure

Use procedure A given in ISO 1133.

7 Expression of results

The melt-flow rate (MFR), expressed in grams per 10 min, is given by the following equation:

$$\mathrm{MFR}(\theta,\ m_{\mathrm{nom}}) = \frac{t_{\mathrm{ref}} \cdot m}{t}$$

where

θ is the test temperature, in degrees Celsius;

m_{nom} is the nominal load, in kilograms;

t_{ref} is the reference time (10 min), in seconds (600 s);

m is the average mass of the extrudate cut-offs, in grams;

t is the interval between two cuts of an extrudate, in seconds.

Express the results to two significant figures.

8 Test report

The test report shall include the following information:

a) a reference to this part of ISO 4440;

b) complete identification of the pipe or fitting tested;

c) the chemical nature and physical form of the material with which the cylinder is charged;

d) details of any conditioning;

e) the diameter of the die, the temperature and the load used to carry out the test;

f) the melt-flow rate;

g) details of any unusual behaviour of the test specimen, such as decomposition, sticking, distortion of the extrudate or an unexpected variation in the melt-flow rate.