



SLOVENSKI STANDARD
SIST ISO 1042:1998

01-oktober-1998

Laboratorijska steklovina - Volumetrijske steklenice z eno oznako

Laboratory glassware -- One-mark volumetric flasks

Verrerie de laboratoire -- Fioles jaugées à un trait

Ta slovenski standard je istoveten z: ISO 1042:1998

[SIST ISO 1042:1998](https://standards.iteh.ai/catalog/standards/sist/06b574fd-cd1f-4d59-861a-e66e9205eeb1/sist-iso-1042-1998)

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ICS:

17.060	Merjenje prostornine, mase, gostote, viskoznosti	Measurement of volume, mass, density, viscosity
71.040.20	Laboratorijska posoda in aparati	Laboratory ware and related apparatus

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en

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INTERNATIONAL STANDARD

**ISO
1042**

Fourth edition
1998-07-01

Laboratory glassware — One-mark volumetric flasks

Verrerie de laboratoire — Fioles jaugées à un trait

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Reference number
ISO 1042:1998(E)

ISO 1042:1998(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.

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ISO 1042 was developed by Technical Committee ISO/TC 48, *Laboratory glassware and related apparatus*, Subcommittee SC 1, *Volumetric instruments*.

SIST ISO 1042:1998

This fourth edition cancels and replaces the third edition (ISO 1042:1983) and replaces the third edition (ISO 1042:1983) by incorporating the following changes:

- a) flasks with capacities of 1, 2, 20 and 5 000 ml have been added;
- b) flasks with conical body shape have been added;
- c) flasks with wider neck have been added;
- d) material has been more precisely defined and a test method for capacity introduced;
- e) sizes of ground joints have been added in tables 1 and 2.

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Introduction

Volumetric flasks together with analytical balances are the fundamental tools for the preparation of volumetric standard solutions – the basis of chemical analysis. The design of narrow-necked class A volumetric flasks has been optimized to achieve the fewest possible acceptable errors.

With the increasing popularity of piston-operated pipettors, there is market pressure for the manufacture of volumetric flasks with wider necks so that pipettor tips may be inserted to remove solution directly. Wide-necked flasks will of necessity be of lower accuracy than the corresponding capacities of narrow-necked flasks and the insertion of any extraneous device may introduce other errors.

It is therefore recommended that narrow-necked class A volumetric flasks are used for the production of standard solutions and where necessary, a suitable quantity should be poured into an intermediate vessel into which the pipettor tip may be introduced.

In accordance with good laboratory practice, only narrow-necked class A volumetric flasks conforming to this International Standard should be used for precise analytical purposes.

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Laboratory glassware — One-mark volumetric flasks

1 Scope

This International Standard specifies requirements for an internationally acceptable series of one-mark volumetric flasks, suitable for general laboratory purposes.

The specifications in this International Standard are in conformity with ISO 384 and with OIML Recommendation No. 4.

2 Normative references

The following standards contain provisions which, through references 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. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 383:1976, *Laboratory glassware — Interchangeable conical ground joints.*

ISO 719:1985, *Glass — Hydrolytic resistance of glass grains at 98 °C — Method of test and classification.*

ISO 4787:1984, *Laboratory glassware — Volumetric glassware — Methods for use and testing of capacity.*

3 Basis of adjustment

3.1 Unit of volume

The unit of volume shall be the millilitre (ml) which is equivalent to the cubic centimetre (cm³).

NOTE — The term millilitre (ml) is commonly used as a special name for the cubic centimetre (cm³), in accordance with a decision of the twelfth Conférence Générale des Poids et Mesures. The term millilitre is acceptable, in general, for references in International Standards to capacities of volumetric glassware and it is used, in particular, in the present text.

3.2 Reference temperature

The standard reference temperature, i.e. the temperature at which the volumetric flask is intended to contain its nominal volume (nominal capacity), shall be 20 °C.

When the flask is required for use in a country which has adopted a standard reference temperature of 27 °C, however, this value shall be substituted for 20 °C.

4 Classes of accuracy

Two classes of accuracy are specified:

- **Class A** for the higher grade,
- **Class B** for the lower grade.

5 Series of capacities

The series of nominal capacities of one-mark volumetric flasks is as follows (in millilitres):

1 - 2 - 5 - 10 - 20 - 25 - 50 - 100 - 200 - 250 - 500 - 1 000 - 2 000 - 5 000

All these flasks may be finished with a plain neck or may include a stopper.

NOTE — If volumetric flasks of capacities other than those listed above are required, it is recommended that they conform, as far as possible, to the essential requirements of this International Standard.

6 Definition of capacity

The capacity of a volumetric flask is defined as the volume of water at 20 °C, expressed in millilitres, contained by the flask at 20 °C, when filled to the graduation line.

Where, exceptionally, the reference temperature is 27 °C, this value shall be substituted for 20 °C.

Setting the meniscus shall be performed according to ISO 4787:

The meniscus is set so that the plane of the top edge of the graduation line is horizontally tangential to the lowest point of the meniscus, the line of sight being in the same plane.

7 Accuracy

The capacity of the flasks shall not differ from the nominal capacity by more than the maximum permitted errors shown in tables 1 and 2.

8 Construction

8.1 Material

Volumetric flasks shall be made from glass of hydrolytic class not lower than HGB3 in accordance with ISO 719 with a coefficient of thermal expansion not exceeding $3,3 \times 10^{-6} \text{ } ^\circ\text{C}^{-1}$.

NOTE — Borosilicate glass 3.3 in accordance with ISO 3585 is included in this requirement.

The glass shall be as free as possible from visible defects and reasonably free from internal stress, which would impair the performance of the flasks.

8.2 Wall thickness

Volumetric flasks shall be sufficiently robust in construction to withstand normal usage and the wall thickness shall show no gross departures from uniformity.

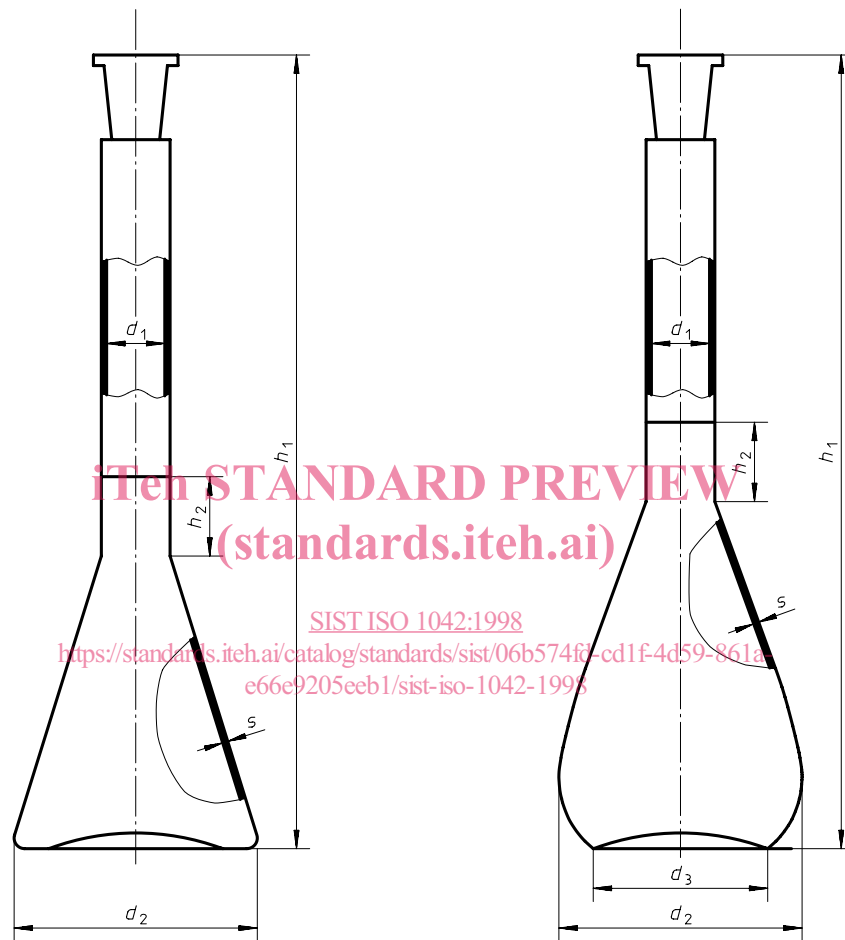


Figure 1 — One-mark volumetric flasks showing alternative shapes