INTERNATIONAL STANDARD

ISO 24450

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Laboratory glassware — Wide-necked boiling flasks

Verrerie de laboratoire — Fioles coniques et ballons à col large

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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 24450 was prepared by Technical Committee ISO/TC 48, *Laboratory glassware and related apparatus*, Subcommittee SC 6, *Laboratory and volumetric ware*.

Laboratory glassware — Wide-necked boiling flasks

1 Scope

This International Standard specifies requirements and dimensions for an internationally acceptable series of conical flasks and of flat-bottom and round-bottom flasks with wide neck for general laboratory purpose. The flasks are provided for

— direct use in laboratory, fitting together with other equipment for general laboratory purposes;

— further work up to other products.

NOTE For narrow-necked boiling flasks, ISO 1773 applies. For boiling flasks with conical ground joints, see ISO 4797.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3585, *Borosilicate glass 3.3 — Properties*

3 Series and capacities

3.1 Series of nominal capacity

The series of nominal capacities of wide-necked conical flasks is as follows (given in millilitres):

50 — 100 — 250 — 500 — 1 000

The series of nominal capacities of wide-necked round-bottom flasks is as follows (given in millilitres):

50 — 100 — 250 — 500 — 1 000 — 2 000 — 4 000 — 6 000 — 10 000

The series of nominal capacities of wide-necked flat-bottom flasks is as follows (given in millilitres):

50 — 100 — 250 — 500 — 1 000 — 2 000

3.2 Nominal capacity

The nominal capacity of a flask is the value, selected from the series given in 3.1, which is closest to but not larger than the actual volume to the base of neck.

NOTE The body dimensions recommended in Tables 1 and 2 take this requirement into account.

4 Material

Flasks shall be made from borosilicate glass 3.3 in accordance with ISO 3585, and shall be free from visible defects which might affect performance, and free from any internal stress which would impair the performance of the flask.

5 Construction and dimensions

5.1 Construction

5.1.1 Stability

Conical flasks and flat-bottom flasks shall stand vertically without rocking or spinning when placed on a level surface.

5.1.2 Neck

The neck of the flask shall be substantially circular in cross-section and the mouth of the neck shall not be belled to any considerable distance from the top. The top of the neck shall be suitably strengthened.

5.2 Dimensions

5.2.1 Recommended dimensions

Dimensions for wide-necked conical flasks are given in Table 1.

Table 1 — Dimensions of wide-necked conical flasks

Dimensions in millimetres

Nominal volume ml	External diameter of body at widest point	External diameter of neck	Overall height	Wall thickness	
				min.	max.
50	51 ± 1	34 ± 1,5	85 ± 3	0,8	2,5
100	64 ± 1,5	34 ± 1,5	105 ± 3	0,8	2,5
250	85 ± 2	50 ± 2	140 ± 3	0,9	3,3
500	105 ± 2	50 ± 2	175 ± 4	0,9	3,3
1 000	131 ± 3	50 ± 2	220 ± 4	1,3	3,6

Dimensions of wide-necked flat-bottom and round-bottom flasks are given in Table 2.

Table 2 — Dimensions of wide-necked flat- and round-bottom flasks

Dimensions in millimetres

Nominal volume ml	External diameter of body at widest point	External diameter of neck	Overall height		Wall thickness	
			flat bottom	round bottom	min.	max.
50	51 ± 1	34 ± 1,5	90 ± 2	95 ± 2	0,8	2,5
100	64 ± 1,5	34 ± 1,5	105 ± 2	110 ± 2	0,8	2,5
250	85 ± 2	50 ± 2	138 ± 2	143 ± 2	0,9	3,3
500	105 ± 2	50 ± 2	163 ± 2	168 ± 2	0,9	3,3
1 000	131 ± 3	50 ± 2	190 ± 3	200 ± 3	1,3	3,6
2 000	166 ± 3	76 ± 2	230 ± 3	240 ± 3	1,5	4,0
4 000	207 ± 3	76 ± 2	—	290 ± 3	1,8	5,0
6 000	236 ± 3	89 ± 3	—	330 ± 3	1,8	5,5
10 000	279 ± 4	89 ± 3	—	380 ± 4	2,0	5,5

5.2.2 Neck length

The length of the neck of conical flasks shall be 1 to 1,25 times the external diameter of the neck.

5.2.3 Dimensions of base

The radius at the junction between the base and the side of conical flasks shall be between 15 % and 20 % of the maximum external diameter.

The diameter of the base of flat-bottom flasks shall be approximately 50 % of the maximum external diameter.

5.2.4 Wall thickness

Values for the wall thickness are given in Tables 1 and 2. Substantial local irregularities shall be avoided. Manufacturers shall take care that minimum wall thicknesses are compatible with safety requirements.

5.3 Graduation

Wide-necked conical flasks may be provided with a scale approximately indicating the volume of liquid contained.

6 Marking

The following inscriptions shall be permanently and legibly marked on all conical, flat-bottom and round-bottom flasks:

a) the nominal volume of the flask, e.g. “100 ml”;

b) the maker's and/or vendor's name and/or mark;

c) each flask shall also bear an area with a surface suitable for marking with a pencil.

It is recommended that reference is made on each flask to this International Standard, e.g. by the inscription “ISO 24450”.

Bibliography

[1] ISO 1773, *Laboratory glassware — Narrow-necked boiling flasks*

[2] ISO 4797, *Laboratory glassware — Boiling flasks with conical ground joints*

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