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Laboratory glassware — Boiling flasks with conical ground joints

Verrerie de laboratoire — Fioles coniques et ballons à joint conique rodé

Please see the administrative notes on page iii

Reference number
ISO/FDIS 4797:2015(E)

ISO/CEN PARALLEL PROCESSING

This final draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO-lead** mode of collaboration as defined in the Vienna Agreement. The final draft was established on the basis of comments received during a parallel enquiry on the draft.

This final draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel two-month approval vote in ISO and formal vote in CEN.

Positive votes shall not be accompanied by comments.

Negative votes shall be accompanied by the relevant technical reasons.

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information.

The committee responsible for this document is ISO/TC 48, *Laboratory equipment* in collaboration with CEN/TC 332, *Laboratory equipment*.

This third edition cancels and replaces the second edition (ISO 4797:2004), which has been technically revised to include the following changes:

— round-bottom flasks with nominal volumes of 3 l, 5 l, and 20 l have been added;

— overall heights of some round-bottom flasks of Series 1 (Table 3) have been modified;

— requirements for thermal shock endurance have been added.

Laboratory glassware — Boiling flasks with conical ground joints

1 Scope

This International Standard specifies requirements for an internationally acceptable series of boiling flasks with conical ground joints for general laboratory purposes.

2 Normative references

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

ISO 383, *Laboratory glassware — Interchangeable conical ground joints*

ISO 718, *Laboratory glassware — Thermal shock and thermal shock endurance — Test methods*

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

ISO 3585, *Borosilicate glass 3.3 — Properties*

3 Types

The following three types of boiling flasks with conical ground joints are specified:

a) conical flasks;

b) flat-bottom flasks;

c) round-bottom flasks.

4 Series of capacities

Two series are specified for each type of boiling flask with conical ground joints. The series differ in height and in selection of joint sizes. It is recommended that, in national standards, one of these series is chosen.

5 Material

Boiling 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.

6 Dimensions

The external diameter of body of round-bottom flasks and flat-bottom flasks, the external diameter of body at the widest point of conical flasks and the minimum wall thickness shall comply with the dimensions specified in ISO 1773.

The nominal overall height of the boiling flasks with conical ground joints shall be as specified in Table 1, Table 2 and Table 3.

7 Ground glass joints

The sizes of the conical joints fitted to the boiling flasks shall be as given in Table 1, Table 2 and Table 3. The joints shall comply with the requirements of ISO 383, *k*6 series.

8 Thermal shock endurance

Boiling flasks with a nominal volume ≤3 000 ml shall have a thermal shock endurance of 150 °C and boiling flasks with a nominal volume >3 000 ml shall have a thermal shock endurance of 100 °C when tested in accordance with ISO 718.

9 Marking

The following inscriptions shall be permanently and legibly marked on all laboratory boiling flasks with conical ground joints:

a) nominal volume of the boiling flask, for example “100 ml”;

b) size of the conical ground joint, for example “29/32”;

c) manufacturer’s and/or vendor’s name and/or mark;

d) area with a surface suitable for marking with a pencil.

It is recommended that reference be made on each flask to this International Standard, for example by the inscription “ISO 4797”.

Table 1 — Overall height and joint sizes for conical flasks

Nominal volume ml	Series 1		Series 2	
	Overall height mm	Joint sizes	Nominal overall height mm	Joint sizes
10	60 ± 3	14/23	—	—
25	70 ± 3	14/23 19/26	70	14/23 19/26
50	85 ± 6		85	
100	100 ± 6	14/23 19/26 24/29 29/32	105	14/23 19/26 24/29 29/32
250	140 ± 6	19/26 24/29 29/32	135	19/26 24/29 29/32 34/35
500	175 ± 6		170	
1 000	220 ± 7	24/29 29/32 34/35	210	24/29 29/32 34/35
2 000	270 ± 7		275	
3 000	—	—	310	34/35 45/40
5 000	—		365	

Table 2 — Overall height and joint sizes for flat-bottom flasks

Nominal volume ml	Series 1		Series 2	
	Overall height mm	Joint sizes	Nominal overall height mm	Joint sizes
50	85 ± 3	19/26 29/32	85	19/26 24/29
100	103 ± 6		100	19/26 24/29 29/32 34/35
250	130 ± 6		125	
500	160 ± 6	29/32	145	24/29 29/32 34/35
1 000	187 ± 6		175	
2 000	230 ± 6		210	
4 000	—	—	255	45/40

Table 3 — Overall height and joint sizes for round-bottom flasks

Nominal volume ml	Series 1		Series 2	
	Overall height mm	Joint sizes	Nominal overall height mm	Joint sizes
10	70 ± 3	14/23	—	—
25	85 ± 3			
50	90 ± 6	14/23 19/26 24/29 29/32	90	14/23 19/26 29/32 24/29 34/35
100	105 ± 6		110	
250	138 ± 6	19/26 24/29 29/32	135	19/26 24/29 29/32 34/35
500	163 ± 6	24/29 29/32	155	19/26 24/29 29/32 34/35 45/40
1 000	200 ± 7		185	
2 000	240 ± 7		220	
3 000	275 ± 7	24/29 29/32 34/35 45/40 55/44	—	—
4 000	295 ± 7	29/32 45/40	270	34/35 45/40
5 000	300 ± 7	24/29 29/32 34/35 45/40 55/44	275	29/32 34/35 45/40
6 000	358 ± 7	45/40	325	45/40
10 000	380 ± 7	45/40	350	34/35 45/40
20 000	435 ± 10	55/44	—	—

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