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ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION

R 1773

LABORATORY BOILING FLASKS

1st EDITION

October 1970

For each individual country the only valid standard is the national standard of that country.

Printed in Switzerland

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BRIEF HISTORY

The ISO Recommendation R 1773, *Laboratory boiling flasks,* was drawn up by Technical Committee ISO/TC 48, *Laboratory glassware and related apparatus,* the Secretariat of which is held by the British Standards Institution (BSI).

Work on this question led to the adoption of Draft ISO Recommendations Nos. 1773 and 1774, which were circulated to all the ISO Member Bodies for enquiry in December 1968. They were approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

(*a*) Draft No. 1773

Austria	Iran	South Africa, Rep. of
Belgium	Israel	Spain
Canada	Italy	Thailand
Colombia	Korea, Dem. P. Rep. of	Turkey
Czechoslovakia	Netherlands	U.A.R.
France	New Zealand	United Kingdom
Greece	Peru	U.S.S.R.
India	Poland	Yugoslavia

(*b*) Draft No. 1774

Austria	Iran	Spain
Belgium	Israel	Thailand
Canada	Italy	Turkey
Colombia	Korea, Dem. P. Rep. of	U.A.R.
Czechoslovakia	Netherlands	United Kingdom
France	New Zealand	U.S.S.R.
Germany	Peru	Yugoslavia
Greece	Poland	
India	South Africa, Rep. of	

The following Member Bodies opposed the approval of Draft No. 1773 :

Germany
U.S.A.

The following Member Body opposed the approval of Draft No. 1774 :

U.S.A.

In accordance with the decisions of Technical Committee ISO/TC 48, the two Draft ISO Recommendations were merged into one single document comprising two parts. The latter was submitted by correspondence to the ISO Council, which decided to accept it as an ISO RECOMMENDATION.

ISO Recommendation | R 1773 | October 1970

LABORATORY BOILING FLASKS

PART I

CONICAL FLASKS

1. SCOPE

Part I of this ISO Recommendation specifies requirements for an internationally acceptable series of conical flasks for general laboratory purposes. It is intended to provide useful guidance for new construction and it is hoped that present construction will be brought into line as soon as possible.

2. SERIES OF CAPACITIES

The series of nominal capacities of conical flasks is as follows :

25, 50, 100, 250, 500, 1000, 2000, 3000 and 5000 ml.

3. CAPACITY

The nominal capacity of a flask is the value, selected from the series in section 2, which is closest to, but not less than, the actual capacity to the base of the neck.

NOTE. – The body dimensions recommended in Table 1, page 6, take this requirement into account, and accord as far as possible with the current production of flasks.

4. MATERIAL

4.1 General

Flasks should be made from borosilicate glass of suitable chemical and thermal properties, should be as free as possible from visible defects and should be reasonably free from internal strain.

4.2 Hydrolytic resistance

When the glass is tested in accordance with ISO Recommendation R 719, *Determination of the hydrolytic resistance of glass grains at 98 °C*, the amount of alkali extracted, expressed as Na_2O, should not be greater than 25 μg per gramme of glass.

4.3 Thermal shock resistance

The glass should have a maximum coefficient of linear thermal expansion of 5.5×10^{-6} per degree Celsius over the temperature range 20 to 300 °C.

NOTE. – If information is required by the purchaser on the thermal shock resistance of flasks of any particular size and wall thickness, a test should be carried out in accordance with ISO Recommendation R 718, *Methods for thermal shock tests on laboratory glassware*. The temperature differential to be applied in the test, and also any necessary amendments in the test procedure resulting from the size of the flask, should be the subject of agreement between purchaser and vendor.

5. CONSTRUCTION

5.1 Stability

The flasks should stand vertically without rocking or spinning when placed on a level surface.

5.2 Neck

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

6. DIMENSIONS

6.1 Recommended dimensions

Recommended dimensions for conical flasks are given in Table 1.

TABLE 1 – **Recommended dimensions for conical flasks**

Dimensions in millimetres

Nominal capacity ml	External diameter of body at widest point	External diameter of neck	Overall height	Minimum wall thickness (see clause 6.4)
25	42 ± 1	22 ± 1	70 ± 3	0.8
50	51 ± 1	22 ± 1	85 ± 3	0.8
100	64 ± 1.5	22 ± 1	105 ± 3	0.8
250	85 ± 2	34 ± 1.5	140 ± 3	0.9
500	105 ± 2	34 ± 1.5	175 ± 4	0.9
1 000	131 ± 3	42 ± 2	220 ± 4	1.3
2 000	166 ± 3	50 ± 2	280 ± 4	1.5
3 000	187 ± 3	50 ± 2	310 ± 5	1.8
5 000	220 ± 3	50 ± 2	365 ± 5	1.8

6.2 Neck length

The length of the neck should be 1 to 1.25 times the external diameter of the neck.

6.3 Dimensions of base

The radius at the junction between the base and the side of the flask should be between 15 and 20 % of the maximum external diameter.

6.4 Wall thickness

Recommended minimum values for the wall thickness are given in Table 1. Substantial local irregularities should be avoided.

7. INSCRIPTIONS

The following inscriptions should be permanently and legibly marked on all conical flasks :

(*a*) the nominal capacity of the flask, e.g. "100 ml" (or "100");

(*b*) the maker's or vendor's name or mark;

(*c*) an area with a surface suitable for marking with pencil.