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R 1772

LABORATORY CRUCIBLES

(PORCELAIN AND SILICA)

1st EDITION

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BRIEF HISTORY

The ISO Recommendation R 1772, *Laboratory crucibles (porcelain and silica),* 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 Recommendation No. 1772, which was circulated to all the ISO Member Bodies for enquiry in December 1968. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

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

No Member Body opposed the approval of the Draft.

This Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided to accept it as an ISO RECOMMENDATION.

ISO Recommendation | R 1772 | October 1970

LABORATORY CRUCIBLES

(PORCELAIN AND SILICA)

1. SCOPE

This ISO Recommendation specifies requirements for an internationally acceptable series of porcelain and silica crucibles and lids for general laboratory requirements.

NOTES

1. It is recognized that some sizes of crucible larger than those listed may be needed for use in laboratories for special purposes. It is recommended that such larger sizes should be designed within the general framework of this ISO Recommendation, i.e. by selecting a suitable multiple of 10 mm as the nominal external top diameter, and applying one of the three standard ratios in order to obtain the nominal height.

2. This ISO Recommendation does not deal with laboratory crucibles made of materials other than porcelain and silica (for example, glass and other ceramic materials, metals, plastics materials). Nevertheless, it is expected that the types, sizes and dimensions specified herein may provide useful guidance for those concerned with the manufacture or standardization of crucibles made of such other materials, and that it may become possible to include them in this ISO Recommendation at some future date.

2. TYPES OF CRUCIBLE

Three types of crucibles are described, as follows :

(*a*) **Type 1** **Low form**, based on a height/diameter ratio of 0.63 (see Fig. 1 (*a*))

(*b*) **Type 2** **Medium form**, based on a height/diameter ratio of 0.8 (see Fig. 1 (*b*))

(*c*) **Type 3** **Tall form**, based on a height/diameter ratio of 1.25 (see Fig. 1 (*c*))

3. TYPES OF LID

Two types of lid are described, as follows :

(*a*) **Type D**, a lid of slightly domed shape (see Fig. 2 (*a*))

(*b*) **Type R**, a recessed lid (see Fig. 2 (*b*))

4. SERIES OF SIZES

The series of sizes of crucibles should be as shown in the Table, page 6.

NOTE. – No values of nominal capacity are specified, but it is recommended that manufacturers should state these for the information of users, on the basis that :

nominal capacity = approximately 75 % of overflow capacity.

5. MATERIAL

5.1 Porcelain crucibles and lids should be made from vitrified porcelain with glazed surface, but the bases and rims of the crucibles need not necessarily be glazed. The porcelain used should satisfy the requirements of the ISO Recommendation R 1775, *Quality and methods of test for laboratory porcelain*.

NOTE. – The sizes and dimensions included in this ISO Recommendation may also conveniently be applied to crucibles of unglazed porcelain.

5.2 Silica crucibles and lids should be made from vitreous silica, either translucent or transparent.

6. DETAILS OF CONSTRUCTION

6.1 General design

The general design of the crucibles is illustrated in Figure 1, that of the lids in Figure 2.

6.2 Stability

The crucibles should stand upright without rocking or spinning when placed on a level surface.

6.3 Provision for lifting lids

At the centre of the upper surface of the domed lid there should be a ring or a protuberance with a hole in it, so that the lid may be conveniently lifted with crucible tongs or supported by a piece of wire.

The recessed lid should be extended at one side into a flattened lip suitable for lifting with crucible tongs.

NOTE. – The designs illustrated in Figure 2 are suitable but alternative designs serving the same purpose are equally acceptable.

7. DIMENSIONS

7.1 Crucibles

The crucibles should comply with the dimensional requirements shown in the Table, page 6.

NOTE. – No wall thicknesses are specified, because the appropriate thicknesses will vary with the material of construction.

7.2 Domed type lids (see Fig. 2 (*a*))

The internal rim diameter *p* should be at least 1 mm greater than the maximum external diameter of the crucibles with which the lids are intended to be used.

The internal depth *q* of the rim should be at least 2 mm.

7.3 Recessed type lids (see Fig. 2 (*b*))

The external diameter *r* should be at least 1 mm greater than the maximum external diameter of the crucibles with which the lids are intended to be used.

The diameter *s* of the recessed portion should be at least 1 mm less than the minimum internal diameter of the crucibles with which it is intended to be used (this being fixed by the manufacturer in view of the wall thickness appropriate to the material used).

The depth *t* of the recessed portion should be at least 2 mm.

8. DESIGNATIONS

8.1 Crucibles

Each crucible should be designated by the type number (1, 2 or 3) followed by a number representing the external top diameter in millimetres (for example, 1/30, 3/60).

8.2 Lids

Each lid should be designated by the type letter D or R followed by a number representing the nominal external top diameter in millimetres of the crucibles with which it is intended to be used (for example, D 30, R 60).

9. INSCRIPTIONS

The following inscriptions should be marked in a suitable fashion on all crucibles and lids :

(*a*) the designation of the crucible (for example, "1/60") or the nominal diameter of the lid (for example, "60");

(*b*) the maker's name or mark.

TABLE – **Dimensions for porcelain and silica crucibles**

Dimensions in millimetres

Shape	Size designation	External diameter (D)		External height (H)	
		Nominal	Tolerance	Nominal	Tolerance
Type 1 Low form ($H/D = 0.63$)	1/30	30	± 1.5	19	± 1.0
	1/35	35	± 1.5	22	± 1.0
	1/40	40	± 1.5	25	± 1.0
	1/45	45	± 2.0	28	± 1.0
	1/50	50	± 2.0	32	± 1.5
	1/60	60	± 2.5	38	± 1.5
	1/70	70	± 2.5	44	± 2.0
Type 2 Medium form ($H/D = 0.8$)	2/35	35	± 1.5	28	± 1.0
	2/40	40	± 1.5	32	± 1.5
	2/45	45	± 2.0	36	± 1.5
	2/50	50	± 2.0	40	± 1.5
	2/60	60	± 2.5	48	± 2.0
	2/70	70	± 2.5	56	± 2.0
Type 3 Tall form ($H/D = 1.25$)	3/30	30	± 1.5	38	± 1.5
	3/35	35	± 1.5	44	± 2.0
	3/40	40	± 1.5	50	± 2.0
	3/45	45	± 2.0	56	± 2.5
	3/50	50	± 2.0	62	± 2.5
	3/60	60	± 2.5	75	± 3.0

NOTE. – The nominal height has been obtained by applying the appropriate ratio H/D to the nominal diameter and then rounding to whole millimetres.

The tolerances have been obtained by calculating ± 3.5 % of the nominal dimensions and rounding outwards to half millimetres.