SLOVENSKI STANDARD
SIST ISO 4796:1995

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Laboratorijska steklovina - Steklenice

Laboratory glassware -- Bottles

Verrerie de laboratoire -- Flacons

Ta slovenski standard je istoveten z: **ISO 4796:1977**

ICS:

71.040.20	Laboratorijska posoda in aparati	Laboratory ware and related apparatus

SIST ISO 4796:1995 **en**

INTERNATIONAL STANDARD ISO 4796

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up 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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 4796 was developed by Technical Committee ISO/TC 48, *Laboratory glassware and related apparatus*, and was circulated to the member bodies in March 1976.

It has been approved by the member bodies of the following countries:

Australia	Germany	Netherlands
Austria	Hungary	Romania
Belgium	India	South Africa, Rep. of
Canada	Israel	Spain
Chile	Italy	Turkey
Czechoslovakia	Korea, Rep. of	United Kingdom
France	Mexico	U.S.S.R.

No member body expressed disapproval of the document.

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Laboratory glassware — Bottles

0 INTRODUCTION

Bottles used in a laboratory are often used to contain dangerous chemicals such as strong acids and it is therefore important that they are designed for maximum safety in use.

Two features primarily affect safety in handling :

— the neck and upper portion of the bottle shall be so designed that no air is trapped in the shoulder when the bottle, filled to its nominal capacity, is tipped for pouring; this avoids the danger of gulping and splashing of the contents. This feature can most conveniently be achieved by making the upper portion of the bottle of conical shape;

— the outside rim or lip at the top of the neck shall be so designed that, at the end of the pouring operation, the last drop is transferred to the receiving vessel and does not run down the outside of the bottle. The precise shape of the lip will depend to some extent on the method of manufacture and can only be specified in general terms.

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies an internationally acceptable series of bottles suitable for the storage of liquid chemicals and reagents in general laboratory use.

2 REFERENCE

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

3 SERIES OF CAPACITIES

3.1 The nominal capacities of laboratory bottles shall be chosen from the following series :

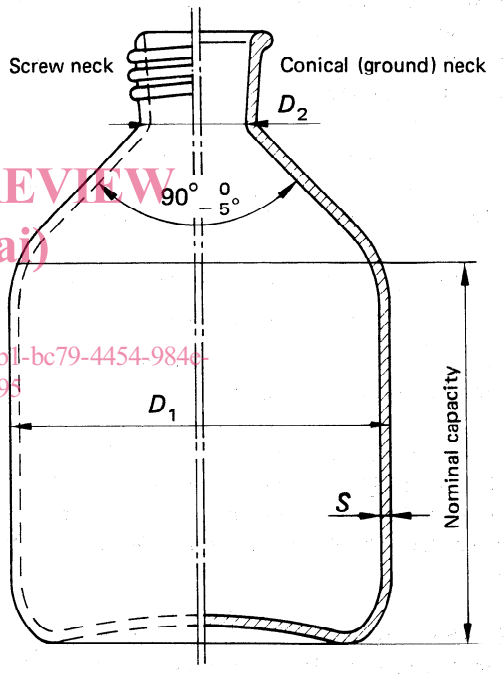
50 — 100 — 250 and 500 ml; 1 — 2 — 5 and 10 litres.

3.2 The nominal capacity of a laboratory bottle indicates the quantity of liquid which a bottle of average wall thickness will contain when the bottle is filled to the turn of the shoulder.

3.3 The design of the bottle is such that the total capacity to the base of the neck is approximately 15 % greater than that to the shoulder.

4 DIMENSIONS

The dimensions and tolerances of laboratory bottles are given in the figure and table below.



Nominal capacity	Outside diameter $D_1 \approx$	Wall thickness S min.	Internal neck diameter D_2 min.
ml	mm	mm	mm
50	43	1	8,5
100	54	1,2	10,5
250	71	1,3	13
500	90	1,3	17
1 000	110	1,7	22
2 000	135	2	22,5
5 000	185	2,3	35
10 000	230	2,7	55

5 CONSTRUCTION

5.1 Material

Laboratory bottles shall be constructed of clear colourless or amber glass of suitable chemical and thermal properties.

Internal stress and visible defects in the glass (such as bubbles near the surface) shall be reduced to a level sufficient to minimize the possibility of fracture due to thermal or mechanical shock.

5.2 Design

5.2.1 The base of the bottle shall be so constructed that it stands firmly on a flat surface without rocking or spinning.

5.2.2 The base of the bottle shall have a suitable radius in order to provide a smooth transition between the base and the side. The main portion of the side may, if desired, be slightly tapered and shall be, at the mid-point, of diameter D_1, as given in the table.

5.2.3 The shoulder of the bottle shall have a suitable radius in order to provide a smooth transition between the side and the conical upper portion of the bottle.

5.2.4 The upper portion of the bottle shall be of conical shape with an included angle of $90^\circ {}^{0}_{-5}{}^\circ$. The transition radius to the neck shall be as small as possible compatible with good manufacturing practice.

5.2.5 The bottle shall be blown so as to achieve a good distribution of glass in the mould without sudden changes in the wall thickness. The thinnest areas shall not have a thickness less than the minimum value specified in the table.

5.2.6 The neck of the bottle shall be stoutly constructed and, in the case of ground conical necks, finished with a strengthening lip formed to facilitate pouring without liquid running down the outside of the bottle. A clip-on anti-drip ring of plastics material fitting into a slightly recessed channel on the outside of the neck is a permitted alternative form of construction.

5.2.7 The inside of a conical neck may be smooth or may be finished by fine grinding, preferably to an interchangeable joint size complying with the requirements of ISO 383.

5.2.8 Dimensions and design of the thread of a screw neck should comply with suitable national standards or International Standards.

5.3 Stoppers and closures

Bottles shall preferably be provided with stoppers, which shall be of glass or a suitable inert plastics material.

5.3.1 Glass stoppers shall be made of glass of similar coefficient of expansion to that of the bottle. They should be ground, preferably, to a suitable joint size complying with the requirements of ISO 383, and should be selected, preferably, from the *k* 6 series.

5.3.2 Plastics stoppers and closures shall be made from a suitable inert material and shall be moulded :

— for use with bottles with conical neck to interchangeable joint sizes;

— for use with bottles with screw neck to a size of thread fitting that of the bottle.

5.3.3 Stoppers should preferably have a flat top with a grip larger than the diameter of the lip of the neck with which they are intended to be used.

6 MARKING

Laboratory bottles complying with this International Standard shall be marked with :

a) the nominal capacity;

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

c) in the case of bottles supplied with interchangeable stoppers, the size number of the joint, which shall be duplicated on the stopper;

d) in the case of bottles with individually fitted ground glass stoppers, an identification number, which shall be duplicated on the stopper;

e) the number of this International Standard, i.e. ISO 4796, or appropriate reference to the corresponding national standard.

In addition, each bottle may bear an area with a surface suitable for marking with pencil.

Marks a) to c) may be moulded into the recessed base of the bottle, if the method of manufacture permits; otherwise they may be indelibly marked, in any convenient position, by etching, sandblasting or with vitreous enamel.