

INTERNATIONAL  
STANDARD

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**Containers and accessories for  
pharmaceutical preparations —**

**Part 3:**

**Screw-neck glass bottles (veral) for solid  
and liquid dosage forms**

*Récipients et accessoires pour préparations pharmaceutiques —*

*Partie 3: Flacons en verre à bouchon à vis (veral) pour formes sèches  
et liquides*

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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 114183 was prepared by Technical Committee ISO/TC 76, *Transfusion, infusion and injection equipment for medical and pharmaceutical use*.

This second edition cancels and replaces the first edition (ISO 11418-3:1996), which has been technically revised.

ISO 11418 consists of the following parts, under the general title *Containers and accessories for pharmaceutical preparations*:

- *Part 1: Drop-dispensing glass bottles*
- *Part 2: Screw-neck glass bottles for syrups*
- *Part 3: Screw-neck glass bottles (veral) for solid and liquid dosage forms*
- *Part 4: Tablet glass bottles*
- *Part 5: Dropper assemblies*
- *Part 7: Screw-neck vials made of glass tubing for liquid dosage forms*



# Containers and accessories for pharmaceutical preparations —

## Part 3:

## Screw-neck glass bottles (veral) for solid and liquid dosage forms

### 1 Scope

This part of ISO 11418 specifies the design, dimensions, material and requirements of screw-neck glass bottles (veral) for pharmaceutical preparations in solid and liquid dosage forms. Screw-neck glass bottles are applicable to primary packs used in direct contact with a drug.

This part of ISO 11418 is applicable to screw-neck glass bottles (veral) used in pharmacy. Together with the corresponding closure systems, they serve for packaging of pharmaceutical preparations in solid and liquid dosage forms which are not intended for parenteral use.

**NOTE** The potency, purity, stability and safety of a drug during its manufacture and storage can be strongly affected by the nature and performance of the primary pack.

### 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 719:1985, *Glass — Hydrolytic resistance of glass grains at 98 °C — Method of test and classification*

ISO 720:1985, *Glass — Hydrolytic resistance of glass grains at 121 °C — Method of test and classification*

ISO 1101:2004, *Geometrical Product Specifications (GPS) — Geometrical tolerancing — Tolerances of form, orientation, location and run-out*

ISO 4802-1:1988, *Glassware — Hydrolytic resistance of the interior surfaces of glass containers — Part 1: Determination by titration method and classification*

ISO 4802-2:1988, *Glassware — Hydrolytic resistance of the interior surfaces of glass containers — Part 2: Determination by flame spectrometry and classification*

ISO 7459:2004, *Glass containers — Thermal shock resistance and thermal shock endurance — Test methods*

ISO 8113:2004, *Glass containers — Resistance to vertical load — Test method*

### 3 Dimensions and designation

#### 3.1 Dimensions

The dimensions of screw-neck glass bottles (veral)<sup>1)</sup> for pharmaceutical preparations in solid and liquid dosage forms shall be as shown in Figure 1 and as given in Table 1.

Tolerancing of form, orientation, location and run-out not specified in this part of ISO 11418 shall be in accordance with ISO 1101.

#### 3.2 Designation

Screw-neck glass bottles (veral) for pharmaceutical preparations in solid and liquid dosage forms shall be designated by a reference to this part of ISO 11418, followed by the nominal volume and the colour of the glass.

**EXAMPLE** A screw-neck glass bottle (veral) with a 28 mm pilferproof finish of nominal volume 100 ml, made of amber glass (br) of hydrolytic resistance container class ISO 4802 – HC 3, in accordance with this part of ISO 11418 is designated as follows:

**Screw-neck glass bottle ISO 114183 – 100 – br**

### 4 Requirements

#### 4.1 Material

The material shall be colourless (cl) or amber (br) borosilicate glass (see ISO 4802-1 or ISO 4802-2) or soda-lime-silica glass (see ISO 4802-1 or ISO 4802-2) of hydrolytic resistance grain class ISO 719 – HGB 3 or ISO 720 – HGA 2.

#### 4.2 Performance

##### 4.2.1 Vertical load resistance

The resistance to vertical load shall be in accordance with ISO 8113.

##### 4.2.2 Hydrolytic resistance

When tested in accordance with ISO 4802-1 or ISO 4802-2, the hydrolytic resistance of the internal surface of the screw-neck glass bottle shall comply with the requirements of the hydrolytic resistance container class ISO 4802 – HC 3.

##### 4.2.3 Thermal shock resistance

Screw-neck glass bottles (veral) shall withstand the thermal shock of a temperature difference of 42 °C when tested in accordance with the thermal shock resistance test specified in ISO 7459.

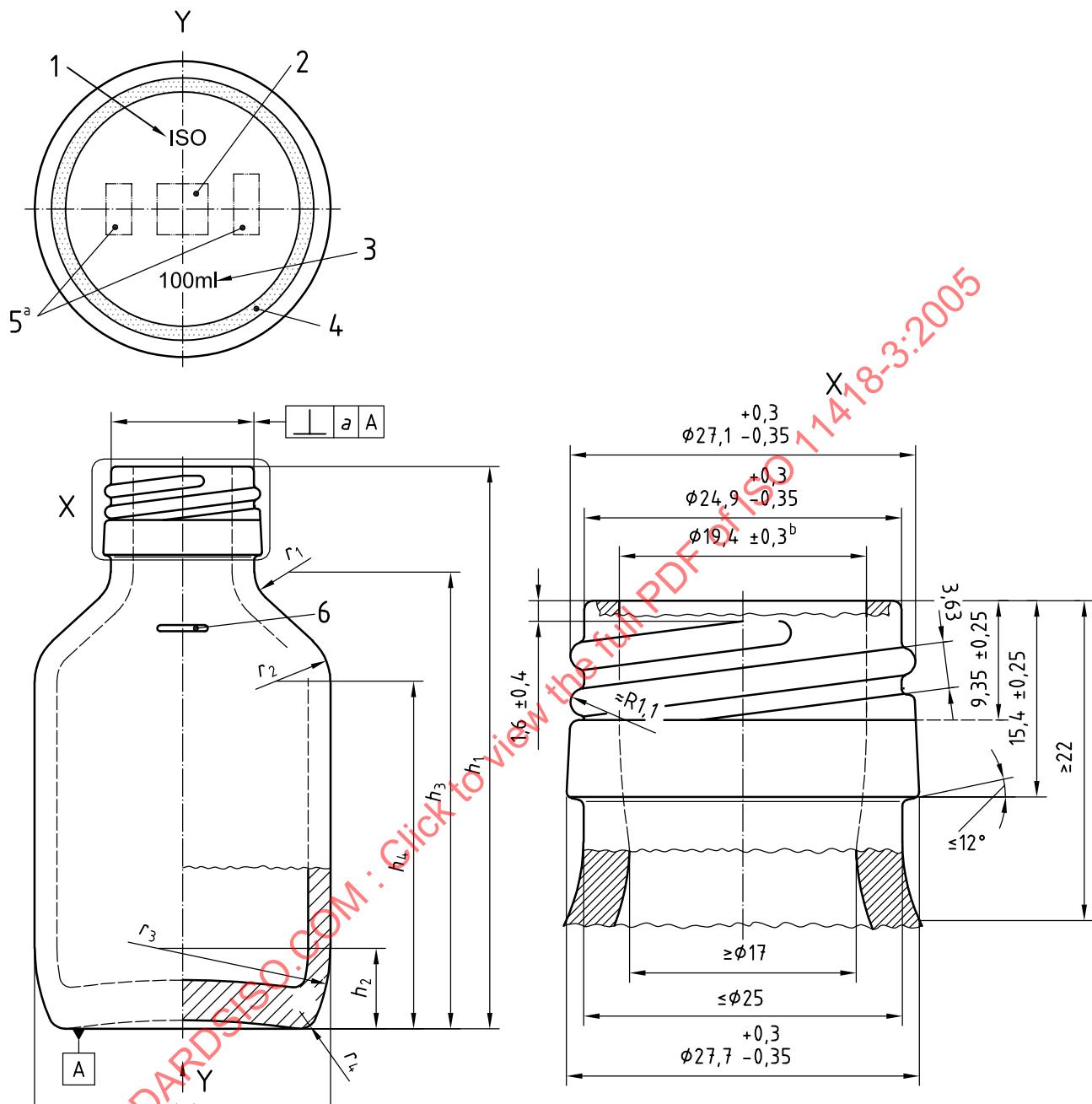
### 5 Marking

The screw-neck glass bottle (veral) shall be marked with the information specified in Figure 1 (view Y).

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1) From the French term “verre allégé” “lightweight glass”.

Dimensions in millimetres



## Key

- 1 ISO letters (optional)
- 2 manufacturer's trademark
- 3 nominal volume (optional)
- 4 bottom surface may be granular, flat or rifled
- 5 manufacturer's code/designation of the mould
- <sup>a</sup> The number of the mould may be placed on the curve  $r_3$ , on the bottom or on the shoulder of the bottle.
- <sup>b</sup> On approximately 1 mm depth from the top of the neck.

**Figure 1 — Typical screw-neck glass bottle (veral) with a 28 mm pilferproof neck finish, showing marking locations**

Table 1 — Nominal volume, overflow capacity and dimensions of screw-neck glass bottles (veral) for solid and liquid dosage forms

Nominal volume ml	Minimum overflow (brimful) capacity ml	a	$d_1$ nom.	$h_1$ nom.	$h_2$ tol.	$h_3$ nom.	$h_4$ tol.	$r_1$ tol.	$r_2$ tol.	$r_3$ tol.	$r_4$ tol.	Mass		
												tol.	g	
50	60,5	1,1	40,8	$\pm 0,8$	83	$\pm 0,7$	12	64,6	50,6	6	8	25	2,5	59
75	85,8	1,2	47,4	$\pm 0,8$	91,4	$\pm 0,8$	13	73	56,5	6	9	28	2,8	86
100	115,3	1,3	51,6	$\pm 0,8$	98	$\pm 0,8$	14	79,6	60,6	6	9,5	30	3	95
125	144,8	1,3	57	$\pm 0,9$	98	$\pm 0,8$	15	79,6	58,6	6	10	35	3,2	103
150	169,4	1,4	57	$\pm 0,9$	110,4	$\pm 0,8$	15	92	71	6	10	35	3,2	110
200	221,6	1,6	64	$\pm 1$	116	$\pm 0,9$	17	97,6	71,6	6	14	38	3,5	140
250	277,8	1,7	64	$\pm 1$	137,5	$\pm 0,9$	17	119,1	93,1	6	14	38	3,5	168
500	546,9	2,1	82,6	$\pm 1,3$	161,8	$\pm 1$	22	143,4	105	8	18	40	4	270
1 000	1 079	2,7	100,6	$\pm 1,6$	206,2	$\pm 1,2$	24	187,5	140	10	21	45	5	485

Dimensions in millimetres