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Glass packaging — Standard tolerances for flaconnage

Emballages en verre — Tolérences standard pour flaconnage

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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Foreword

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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. www.iso.org/directives

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This document was prepared by CEN/TC 261 *Packaging*, as EN 15904:2010 and was adopted, under a special "fast-track procedure", by ISO/TC 63, *Glass containers*, in parallel with its approval by the ISO member bodies.

Introduction

This International Standard is based on CE.T.I.E. (International Technical Centre for Bottling and related Packaging) data sheet DT 15.00 series.

Efficient packaging is of great importance for the distribution and the protection of goods. Insufficient or inappropriate packaging can lead to damage or wastage of the contents of the pack.

Glass packaging — Standard tolerances for flaconnage

1 Scope

This International Standard specifies the tolerances for the bottles intended to be used for pharmaceutical products, cosmetic and perfumery products and chemical products.

The following tolerances are concerned:

— brimful capacity;

— height;

— diameter and width;

— verticality.

The following types of bottles are excluded from this International Standard:

— “miniatures”;

— small bottles for extracts, essences, etc.;

— small jars (e.g. individual portions of jam).

2 Product group bottles and other glass containers

Three groups of bottles have been identified:

a) Flacons for pharmaceutical purpose and medicine bottles of all kinds

This group includes, for example, injection containers, drop bottles, infusion bottles, cough syrup bottles and other bottles and jars (ointment jars) used for pharmaceutical products.

b) Flacons for cosmetics

This group includes all bottles and similar containers used for cosmetic products, e.g. nail varnish, hair tonic, perfume and also cream jars.

c) Flacons for techno-chemical purposes

This group includes, for example, bottles for ink, varnish, glue, heavy chemicals, furniture polish stain remover, pest destruction agents and denatured alcohol.

3 Brimful capacity tolerances

The brimful capacity tolerances shall be as given in Table 1.

Table 1 — Brimful capacity tolerances

Brimful capacity C ml		Tolerances *Tc* ml ±		Brimful capacity		Tolerances *Tc* ml ±		Brimful capacity C ml		Tolerances *Tc* ml ±	
Over	Up to and including	⌀ Round	Non-round[a]	Over	Up to and including	⌀ Round	Non-round[a]	Over	Up to and including	⌀ Round	Non-round[a]
1	3	0,6	0,7	191	198	3,9	4,7	454	464	7,2	8,6
3	8	0,7	0,8	198	205	4	4,8	464	474	7,3	8,8
8	13	0,8	1	205	211	4,1	4,9	474	484	7,4	8,9
13	18	0,9	1,1	211	218	4,2	5	484	495	7,5	9
18	24	1	1,2	218	225	4,3	5,2	495	507	7,6	9,1
24	30	1,1	1,3	225	232	4,4	5,3	507	519	7,7	9,2
30	36	1,2	1,4	232	239	4,5	5,4	519	530	7,8	9,4
36	41	1,3	1,6	239	246	4,6	5,5	530	541	7,9	9,5
41	47	1,4	1,7	246	253	4,7	5,6	541	554	8	9,6
47	52	1,5	1,8	253	260	4,8	5,8	554	568	8,1	9,7
52	57	1,6	1,9	260	267	4,9	5,9	568	580	8,2	9,8
57	63	1,7	2	267	274	5	6	580	595	8,3	9,9
63	69	1,8	2,2	274	282	5,1	6,1	595	609	8,4	10
69	75	1,9	2,3	282	289	5,2	6,2	609	624	8,5	10,2
75	81	2	2,4	289	297	5,3	6,4	624	640	8,6	10,3
81	86	2,1	2,5	297	305	5,4	6,5	640	655	8,7	10,4
86	92	2,2	2,6	305	313	5,5	6,6	655	673	8,8	10,6
92	98	2,3	2,8	313	321	5,6	6,7	673	691	8,9	10,7
98	104	2,4	2,9	321	329	5,7	6,8	691	712	9	10,8
104	110	2,5	3	329	337	5,8	7	712	736	9,1	10,9
110	116	2,6	3,1	337	345	5,9	7,1	736	760	9,2	11
116	122	2,7	3,2	345	354	6	7,2	760	790	9,3	11,2
122	128	2,8	3,4	354	362	6,1	7,3	790	820	9,4	11,3
128	134	2,9	3,5	362	370	6,2	7,4	820	850	9,5	11,4
134	140	3	3,6	370	379	6,3	7,6	850	880	9,6	11,5
140	146	3,1	3,7	379	388	6,4	7,7	880	910	9,7	11,6
146	152	3,2	3,8	388	397	6,5	7,8	910	940	9,8	11,8
152	158	3,3	4	397	406	6,6	7,9	940	970	9,9	11,9
158	164	3,4	4,1	406	415	6,7	8	970	1 050	10	12
164	171	3,5	4,2	415	425	6,8	8,2	–	–	–	–
171	178	3,6	4,3	425	435	6,9	8,3	–	–	–	–
178	185	3,7	4,4	435	–	–	–	–	–	–	–
185	191	3,8	4,5	444	–	–	–	–	–	–	–

a Except special profiles.

The tolerance is expressed by the following formula (C = brimful capacity):

— For round bottles:

$$C \leq 1\,000\,\text{ml}: Tc = \frac{-C^2}{10^5} + \frac{1{,}9\,C}{100} + 0{,}6$$

$$C > 1\,000\,\text{ml} : Tc = \frac{C}{100}$$

— For non-round bottles:

$$C \leq 1\,000\,\text{ml} : Tc = 1{,}2\left[\frac{-C^2}{10^5} + \frac{1{,}9\,C}{100} + 0{,}6\right]$$

$$C > 1\,000\,\text{ml} : Tc = \frac{1{,}2\,C}{100}$$

4 Height tolerances

The dimensions of height and the tolerances are given in Table 2.

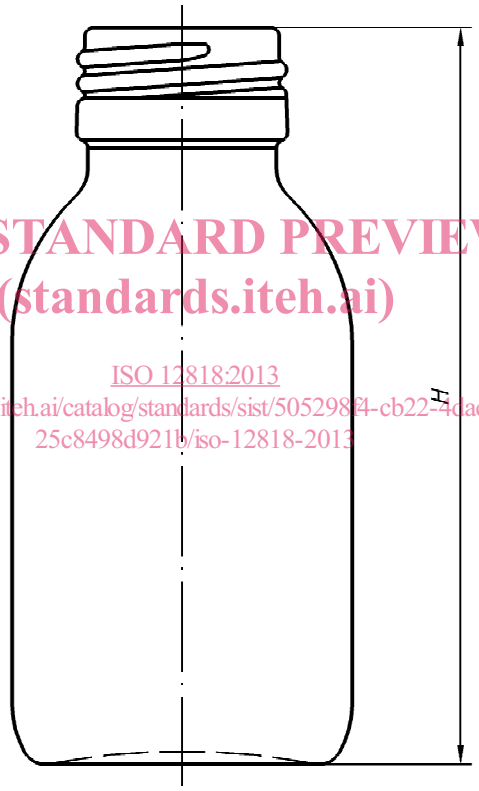

Figure 1 — Height