KAVALIER

CERTIFICATE OF CONFORMITY

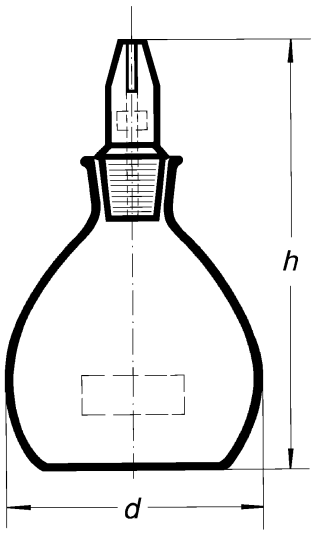
496/24

Issuer´s name/ producer: **KAVALIERGLASS, a.s.**
Issuer´s address/Producer: **Křížová 1018/6, Prague 5**
Production plant: Sklářská 359, 285 06 Sázava, Czech Republic

Object of the declaration: **PYKNOMETERS acc. to Gay-Lussac**

Catalogue Nr.	Product IDN	Capacity/ ml	d [mm]	h [mm]	SJ/ NS
1621	1632431722019	10	27	55	7/ 11
	1632431722023	25	40	75	10/ 13

Scheme of the glass item



Material specification:		
Pycnometer	clear	Borosilicate glass SIMAX®
Print	white	in fired-on, chemically resistant ceramic enamel
Purpose of use	Pycnometers also known as density bottles or specific gravity bottle or SG bottle. Pycnometers are used for determining the particle density and specific gravity of filler in fine aggregates.	

The object of the certificate described above is in conformity with the requirements of the following Standards and Regulations:

Glass characteristics:

- ISO 3585 Borosilicate glass 3.3 – Properties

  - Chemical durability (art. 4.1, 4.2, 4.3, 4.4)
  - Physical properties (art. 5.1, 5.2, 5.3, 5.4, 5.5, 5.6)

- ISO 4794 Laboratory glassware — Methods for assessing the chemical resistance of enamels used for colour coding and colour marking

- ISO 3507:1999 Laboratory glassware — Pyknometers

Table 1 – ISO 3507: Types and sizes of pyknometers

Type	Designation	Nominal capacity [ml]	Actual capacity, ref. T [20 °C]
1	Lipkin	1 2 5 10	Between zero lines of the two scales
2	Sprengel	5 10 25	From tip of jet to graduation line
3	Gay-Lussac	1 2 5 10 25 50 100	To top of bore of stopper
4	Reischauer	10 25 50 100	To zero line of scale
5	Hubbard	25 50	To top of bore of stopper
6	Ground -in thermometer	10 25 50 100	To top of capillary side tube

The actual capacity of the pyknometer shall be determined at the 95% confidence level (k´2) with the uncertainty of measurement which does not exceed the following values:

Table 2 – ISO 3507:

Type	Designation	Value [±µl]
1	Lipkin	5
2	Sprengel	5
3	Gay-Lussac	10
4	Reischauer	5
5	Hubbard	50
6	Ground -in thermometer	15

Maximum permissible errors in capacity fulfill the values specified in Table 3

Table 3 – ISO 3507:

Nominal capacity [ml]	1	2	5	10	25	50	100
Accurancy limits [±ml]	0,1	0,3	0,5	1,0	2,0	3,0	3,0

No heavy metals (lead, cadmium, mercury and hexavalent chromium):

- Regulation (EC) No. 987/2008 of 8 October 2008 amending Regulation (EC) No. 1907/2006 – REACH as regards Annexes IV and V – glass was exempted from the obligation to register.

- **Chemical characteristics (acc. to Regulation No 1907/2006/EC):**

Composition:	CAS No.	EINECS No.	Component:	Concentration /Percent:
	65997-17-3	266-046-0	Glass, oxide, chemicals	100%

Chemical stability: Stable

- **Chemical characteristics of borosilicate glass** (approximate values)

Component	Content (percentage by weight)
SiO_2	80,3%
B_2O_3	13,0%
Al_2O_3	2,4%
$Na_2O + K_2O$	4,3%

Characteristics of Borosilicate glass SIMAX®

- **Acid resistance** Class I. — ISO 1776
- **Hydrolytic resistance** Class I. — HGB1 to ISO 719; HGA1 to ISO 720
- **Alkali resistance** Class II. — ISO 695
- **Coefficient of mean linear thermal expansion α: 3,3 x10^{-6} K^{-1}** — ISO 7991; (20/300 °C)
- **Pharmaceutical use**

	European Pharmacopoeia (EP)	*US Pharmacopoeia (USP)*	*Japanese Pharmacopoeia (JP)*
Glass	Eur. Ph.10^{th} – 3.2.1	USP <660>	JP16

Supporting data:

TEST / European Pharmacopoeia 10, Art. 3.2.1	**UNIT**	**LIMIT**	**RESULT**
Hydrolytic resistance - inner surfaces, test A	**ml 0,01 mol/l HCl/100ml of leachate**	**max 0,40**	**0,04**
Hydrolytic resistance - glass grains, test B	**mol 0,02/l HCl/g**	**max 0,1**	**0,038**
Arsenic content	**µg As/g**	**max 0,1**	**< 0,001**

Additional information:

The producer confirms hereby that the characteristics, measures and accuracy of the products listed above are in full conformity with the provisions of the standard.

The producer also declares that the products are safe when used in usual and proper way.

The producer has installed the Quality Assurance System according to ISO 9001 and thus guarantees that all products delivered to the market are in full conformity with the technical documentation and with all fundamental requirements to such products.
Certificate No. 3258 100 23 52 0132 issued by TÜV CERT, Certification Body at TÜV NORD CERT GmbH.

The certificate is issued for the customer: **AUXILAB, S.L.**

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Sázava, 27. 09. 2024
Place and date of issue

Ing. Kristýna Machová
Project Quality Engineer