KAVALIER

CERTIFICATE OF CONFORMITY

131/24

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

Object of the declaration: **BEAKERS, with spout**

Type of the beakers	Catalogue Nr.	Product IDN	Capacity/ ml	d [mm]	h [mm]
Low form	155	1632411010005	5	22	30
		1632411010010	10	26	35
		1632411010025	25	34	50
		1632411010050	50	42	60
		1632417010100	100	50	70
		1632417010150	150	60	80
		1632417010250	250	70	95
		1632417010400	400	80	110
		1632417010600	600	90	125
		1632417010800	800	100	135
		1632417010940	1000	105	145
		1632417010950	2000	130	185
		1632417010952	3000	150	210
		1632411010956	5000	170	270
		1632411010966	10000	217	350
		1632411010968	20000	285	430
Tall form	153	1632411010050	50	38	70
		1632411012150	150	54	95
		1632417012250	250	60	120
		1632417012400	400	70	130
		1632417012940	1000	95	180

Material specification:		
Beaker	clear	Borosilicate glass SIMAX®
Print	white	in fired-on, chemically resistant ceramic enamel
Purpose of use	laboratory glassware Suitable for work with higher mechanical effort, more resistant against stroke and smash	

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)

- Glass containers for pharmaceutical use
  - Eur. Ph 10th Edition -3.2.1 Glass Type I.

- ISO 3819:2020 - Laboratory glassware — Beakers
  - Maximum permissible errors in dimensions fulfill the values specified in Table 1 - ISO 3819:2020

Table 1 – ISO 3819:2020

Dimensions of low form beakers		
Nominal capacity [ml]	**External diameter [mm] ± 5%**	**Overall height [mm] max.**
5	22	32
10	26	37
25	34	52
50	42	62
100	50	72
150	60	82
250	70	97
400	80	113
500	85	118
600	90	128
800	100	138
1000	105	148
2000	130	188
3000	150	214
5000	170	274
10000	220	360

Dimensions of tall form beakers		
50	38	72
100	48	82
150	54	97
250	60	123
400	70	133
500	79	140
600	80	153
800	90	178
1000	95	183
2000	120	244
3000	135	284
5000	160	324

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.

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.10th – 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**

- **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%

- **Chemical characteristics Borosilicate glass SIMAX® (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 %

- **Temperature resistance**

The maximum permissible short-term operating temperature is 500 °C
The recommended permissible temperature is 350 °C. This temperature may be exceeded for a short period.
The maximum thermal shock resistance is ΔT = 100 K.

Before using, the glass surfaces of the Beakers have to be checked for damages such as scratches, cracks or nicks. Damaged beakers must not be used for safety reasons.

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:

Sázava, 29. 01. 2024
Place and date of issue

Ing. Kristýna Machová
Project Quality Engineer

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