



Test Report 20240225

for:

Könitz Porzellan GmbH
Mr. Stefan Suhre
Bahnhofstraße 2
07333 Könitz

1. Test specimen:

7 samples in accordance with order by E-Mail dated 29/02/2024
(Sample labelling see appendix.)

2. Date of arrival:

06/03/2024

3. Test realization:

25/03/2024 - 08/04/2024

4. Testing method:

- 4.1. Determination of the release of lead and cadmium from consumer goods with a silicate surface according to ASTM C 927-80 (2019) and DIN EN 1388-2:1995-11 (lip and rim area test).
- 4.2. Determination of the release of lead and cadmium from consumer goods with silicate surface according to ASTM C 738-94 (2020) and DIN EN 1388-1:1995-11 (flat or hollow ware test).

5. Sampling / Sample preparation:

See appendix.

6. Results:

See appendix.

7. Testing uncertainties:

See appendix.

8. Epilogue:

All investigations were done in view of the latest scientific-technical trends and to the best of one's knowledge and belief. The testing results exclusively refer to the test specimens. In order to avoid misinterpretations the present report may only be printed, copied and transmitted in its completeness. To copy extractions needs a written permission by the FGK.

18/04/2024

i.V. Dipl.-Ing.(FH) Stefan Link
Laborleiter / Laboratory Manager



This test report consists of 1 page and an appendix of 6 pages.

Re 1. Test specimen:

7 samples, each consisting of 6 identical specimens, labelled as
 "11 2 057 2870; Becher Tea Time-hibiscus",
 "11 5 053 2835 Espresso Coffee Squares" (Obertasse),
 "11 5 053 2835 Espresso Coffee Squares" (Untertasse),
 "11 7 275 2852 Becher Asterix Bogenschi. Tir à l'arc",
 "11 7 275 2873 Becher Vacation Surfing",
 "11 2 057 2857 Becher Sammeltasse Nr.2 Ich hab dich lieb Mond" and
 "11 4 266 2901 Teller Der Kleine Prinz".



Figure 1: "11 2 057 2870;
Becher Tea Time-hibiscus"

Figure 2: "11 5 053 2835
Espresso Coffee Squares"
(Obertasse)

Figure 3: "11 5 053 2835
Espresso Coffee Squares"
(Untertasse)

Figure 4: "11 7 275 2852
Becher Asterix Bogenschi.
Tir à l'arc"



Figure 5: "11 7 275 2873
Becher Vacation Surfing"

Figure 6: "11 2 057 2857
Becher Sammeltasse Nr.2
Ich hab dich lieb Mond"

Figure 7: "11 4 266 2901
Teller Der Kleine Prinz"

Re 2. Date of arrival:

06/03/2024:

6x "11 2 057 2870; Becher Tea Time-hibiscus",
 6x "11 5 053 2835 Espresso Coffee Squares" (Obertasse),
 6x "11 5 053 2835 Espresso Coffee Squares" (Untertasse),
 6x "11 7 275 2852 Becher Asterix Bogenschi. Tir à l'arc",
 6x "11 7 275 2873 Becher Vacation Surfing",
 6x "11 2 057 2857 Becher Sammeltasse Nr.2 Ich hab dich lieb Mond" and
 6x "11 4 266 2901 Teller Der Kleine Prinz".

19/03/2024:

5x "11 7 275 2852 Becher Asterix Bogenschi. Tir à l'arc",
 5x "11 7 275 2873 Becher Vacation Surfing" and
 6x "11 2 057 2857 Becher Sammeltasse Nr.2 Ich hab dich lieb Mond"

22/03/2024:

1x "11 7 275 2852 Becher Asterix Bogenschi. Tir à l'arc" and
 1x "11 7 275 2873 Becher Vacation Surfing"

Re 5. Sampling / Sample preparation:

Sampling and delivery to the FGK was under responsibility of the customer.

The test specimens were cleaned and stored in acetic acid (4 % v/v) over a period of 24 hours according to the standard. For the lip and rim area test the specimens were covered partially with paraffin after cleaning.

Re 6. Results:

Unusual features observed during the test: Internal standard temporarily above 120%

Date of ICP-MS testing: 04/04/2024 and 08/04/2024

6.1. Lip and rim area testing

Table 1: Lip and rim area testing

Testing Parameter	Sample "11 2 057 2870; Becher Tea Time-hibiscus"						Mean
	N° 1	N° 2	N° 3	N° 4	N° 5	N° 6	
Cadmium [mg/L] *	0.009	0.006	0.006	0.008	0.005	0.006	0.007
Lead [mg/L] *	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium [mg/L] **	0.010	0.007	0.006	0.008	0.006	0.006	0.007
Lead [mg/L] **	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium [mg/object]	0.004	0.003	0.003	0.004	0.003	0.003	0.003
Lead [mg/object]	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Volume [L] ***	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Volume [L] ****	0.460	0.460	0.460	0.460	0.460	0.460	0.460
US-FDA #	yes	yes	yes	yes	yes	yes	yes
proposition 65 #	yes	yes	yes	yes	yes	yes	yes
DIN 51032 #	yes	yes	yes	yes	yes	yes	yes

*: measured value **: value calculated to the internal volume ***: storage volume ****: internal Volume

#: compliance of the tested samples with the regulations (yes/no)

Table 2: Lip and rim area testing

Testing Parameter	Sample "11 5 053 2835 Espresso Coffee Squares" (Obertasse)						Mean
	N° 1	N° 2	N° 3	N° 4	N° 5	N° 6	
Cadmium [mg/L] *	0.006	0.006	0.006	0.006	0.005	0.007	0.006
Lead [mg/L] *	0.003	0.005	0.004	0.003	0.005	0.006	0.004
Cadmium [mg/L] **	0.009	0.010	0.010	0.009	0.008	0.010	0.009
Lead [mg/L] **	0.005	0.008	0.006	0.005	0.008	0.009	0.007
Cadmium [mg/object]	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Lead [mg/object]	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Volume [L] ***	0.120	0.120	0.120	0.120	0.120	0.120	0.120
Volume [L] ****	0.080	0.080	0.080	0.080	0.080	0.080	0.080
US-FDA #	yes	yes	yes	yes	yes	yes	yes
proposition 65 #	yes	yes	yes	yes	yes	yes	yes
DIN 51032 #	yes	yes	yes	yes	yes	yes	yes

*: measured value **: value calculated to the internal volume ***: storage volume ****: internal Volume

#: compliance of the tested samples with the regulations (yes/no)

Table 3: Lip and rim area testing

Testing Parameter	Sample "11 7 275 2852 Becher Asterix Bogenschi. Tir à l'arc"						
	N° 1	N° 2	N° 3	N° 4	N° 5	N° 6	Mean
Cadmium [mg/L] *	0.001	0.001	0.001	< 0.001	0.001	0.002	---
Lead [mg/L] *	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium [mg/L] **	0.002	0.002	0.002	< 0.001	0.002	0.002	---
Lead [mg/L] **	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium [mg/object]	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Lead [mg/object]	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Volume [L] ***	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Volume [L] ****	0.410	0.410	0.410	0.410	0.410	0.410	0.410
US-FDA #	yes	yes	yes	yes	yes	yes	yes
proposition 65 #	yes	yes	yes	yes	yes	yes	yes
DIN 51032 #	yes	yes	yes	yes	yes	yes	yes

*: measured value **: value calculated to the internal volume ***: storage volume ****: internal Volume

#: compliance of the tested samples with the regulations (yes/no)

Table 4: Lip and rim area testing

Testing Parameter	Sample "11 7 275 2873 Becher Vacation Surfing"						
	N° 1	N° 2	N° 3	N° 4	N° 5	N° 6	Mean
Cadmium [mg/L] *	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Lead [mg/L] *	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium [mg/L] **	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Lead [mg/L] **	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium [mg/object]	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Lead [mg/object]	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Volume [L] ***	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Volume [L] ****	0.410	0.410	0.410	0.410	0.410	0.410	0.410
US-FDA #	yes	yes	yes	yes	yes	yes	yes
proposition 65 #	yes	yes	yes	yes	yes	yes	yes
DIN 51032 #	yes	yes	yes	yes	yes	yes	yes

*: measured value **: value calculated to the internal volume ***: storage volume ****: internal Volume

#: compliance of the tested samples with the regulations (yes/no)

Table 5: Lip and rim area testing

Testing Parameter	Sample "11 2 057 2857 Becher Sammel tasse Nr.2 Ich hab dich lieb Mond"						
	N° 1	N° 2	N° 3	N° 4	N° 5	N° 6	Mean
Cadmium [mg/L] *	0.002	0.001	0.001	0.001	0.002	0.002	0.002
Lead [mg/L] *	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium [mg/L] **	0.002	0.001	0.001	0.002	0.002	0.002	0.002
Lead [mg/L] **	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium [mg/object]	0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	---
Lead [mg/object]	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Volume [L] ***	0.500	0.500	0.500	0.500	0.500	0.500	0.500
Volume [L] ****	0.460	0.460	0.460	0.460	0.460	0.460	0.460
US-FDA #	yes	yes	yes	yes	yes	yes	yes
proposition 65 #	yes	yes	yes	yes	yes	yes	yes
DIN 51032 #	yes	yes	yes	yes	yes	yes	yes

*: measured value **: value calculated to the internal volume ***: storage volume ****: internal Volume

#: compliance of the tested samples with the regulations (yes/no)

6.2. Flatware and Hollowware testing

Table 6: Flatware testing

Testing Parameter	Sample "11 5 053 2835 Espresso Coffee Squares" (Untertasse)						Mean
	N° 1	N° 2	N° 3	N° 4	N° 5	N° 6	
Cadmium [mg/L] *	< 0.001	0.001	0.001	< 0.001	< 0.001	< 0.001	---
Lead [mg/L] *	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium [mg/dm²]	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Lead [mg/dm²]	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Volume [L] ***	0.050	0.050	0.050	0.050	0.050	0.050	0.050
Area [dm ²] ###	0.985	0.985	0.985	0.985	0.985	0.985	0.985
US-FDA #	yes	yes	yes	yes	yes	yes	yes
proposition 65 #	yes	yes	yes	yes	yes	yes	yes
DIN 51032 #	yes	yes	yes	yes	yes	yes	yes

*: measured value **: measured value related to the area of migration ***: storage volume

###: area for migration #: compliance of the tested samples with the guideline (yes/no)

Table 7: Hollowware testing

Testing Parameter	Sample "11 7 275 2852 Becher Asterix Bogenschi. Tir à l'arc"						Mean
	N° 1	N° 2	N° 3	N° 4	N° 5	N° 6	
Cadmium [mg/L] *	0.002	< 0.001	0.001	< 0.001	0.001	< 0.001	---
Lead [mg/L] *	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Volume [L] ***	0.410	0.410	0.410	0.410	0.410	0.410	0.410
US-FDA #	yes	yes	yes	yes	yes	yes	yes
proposition 65 #	yes	yes	yes	yes	yes	yes	yes
DIN 51032 #	yes	yes	yes	yes	yes	yes	yes

*: measured value ***: storage volume #: compliance of the tested samples with the guideline (yes/no)

Table 8: Hollowware testing

Testing Parameter	Sample "11 7 275 2873 Becher Vacation Surfing"						Mean
	N° 1	N° 2	N° 3	N° 4	N° 5	N° 6	
Cadmium [mg/L] *	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Lead [mg/L] *	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Volume [L] ***	0.410	0.410	0.410	0.410	0.410	0.410	0.410
US-FDA #	yes	yes	yes	yes	yes	yes	yes
proposition 65 #	yes	yes	yes	yes	yes	yes	yes
DIN 51032 #	yes	yes	yes	yes	yes	yes	yes

*: measured value ***: storage volume #: compliance of the tested samples with the guideline (yes/no)

Table 9: Hollowware testing

Testing Parameter	Sample "11 2 057 2857 Becher Sammeltasse Nr.2 Ich hab dich lieb Mond"						Mean
	N° 1	N° 2	N° 3	N° 4	N° 5	N° 6	
Cadmium [mg/L] *	0.001	< 0.001	< 0.001	< 0.001	0.002	< 0.001	---
Lead [mg/L] *	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Volume [L] ***	0.460	0.460	0.460	0.460	0.460	0.460	0.460
US-FDA #	yes	yes	yes	yes	yes	yes	yes
proposition 65 #	yes	yes	yes	yes	yes	yes	yes
DIN 51032 #	yes	yes	yes	yes	yes	yes	yes

*: measured value ***: storage volume #: compliance of the tested samples with the guideline (yes/no)

Table 10: Flatware testing

Testing Parameter	Sample "11 4 266 2901 Teller Der Kleine Prinz"						
	N° 1	N° 2	N° 3	N° 4	N° 5	N° 6	Mean
Cadmium [mg/L] *	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Lead [mg/L] *	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Cadmium [mg/dm ²]	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Lead [mg/dm ²]	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Volume [L] ***	0.295	0.295	0.295	0.295	0.295	0.295	0.295
Area [dm ²] ###	2.75	2.75	2.75	2.75	2.75	2.75	2.75
US-FDA #	yes	yes	yes	yes	yes	yes	yes
proposition 65 #	yes	yes	yes	yes	yes	yes	yes
DIN 51032 #	yes	yes	yes	yes	yes	yes	yes

*: measured value **: measured value related to the area of migration ***: storage volume
 ###: area for migration #: compliance of the tested samples with the guideline (yes/no)

The articles tested comply with the limits of the German regulations as well as the European directive 84/500/EEC and with the limits of Californian regulations (proposition 65 etc.) as well as the limits of US-FDA regulations as far as available to the FGK.

LIMITS

 Table 11: Limits for ceramic foodware according to the US-FDA guidelines CPG Sec. 545.400 (CPG 7117.06) and CPG Sec. 545.450 (CPG 7117.07)

Ceramic foodware	Lead [mg/L] = [ppm]	Cadmium [mg/L] = [ppm]
Flatware	3.0	0.5
Small hollowware	2.0	0.5
Large hollowware (≥ 1.1 L)	1.0	0.25
Pitchers, cups & mugs	0.5	---
Cups & mugs 20 mm lip and rim area	4.0 *	0.4 *

* Source: Society of Glass and Ceramic Decorators SGCD, November 1, 2004: Heavy metal federal legal limits for glass and ceramic decorators.

Table 12: Limits for ceramic foodware according to the Californian guidelines ('proposition 65' etc.)

Ceramic foodware	Lead [mg/L] = [ppm]	Cadmium [mg/L] = [ppm]
Flatware	0.226	1.853
Small hollowware	0.1	0.189
Large hollowware (≥ 1.1 L)	0.1	0.049
Pitchers, cups & mugs	0.1	---
Cups & mugs 20 mm lip and rim area	0.5	4.0

* 'Safe Harbor limits based upon OEHHA's Maximum Allowable Dose Level (MADL) for cadmium 4.1 µg/day (oral) (October 2021)' (Source: LUCIDEON Publication: Metal Release from Ceramic, Glass and Enamel Ware in Contact with Food - A Guide to Worldwide Regulations and Standards, January 2022)

Table 13: Limit values for the release of lead and cadmium from ceramic foodware and glassware according to DIN 51032 (based on European directive 84/500/EEC and supplementary European directive 2005/31/EC, which refers to the European regulation 1935/2004/EC):

Ceramics & glassware: Flatware objects	Lead [mg/dm²]	Cadmium [mg/dm²]
Tableware, kitchenware	0.8	0.07
Cooking ware, ovenware, ceramic storing ware	0.4	0.05

Table 14: Limit values for the release of lead and cadmium from ceramic foodware and glassware according to DIN 51032 (based on European directive 84/500/EEC and supplementary European directive 2005/31/EC, which refers to the European regulation 1935/2004/EC):

Ceramics & glassware: Hollowware objects	Lead [mg/L] = [ppm]	Cadmium [mg/L] = [ppm]
Tableware, kitchenware	4.0	0.3
Cooking ware, ovenware, ceramic storing ware	1.5	0.1
Lip and rim area of hollow objects	2.0 [mg/object]	0.2 [mg/object]

Re 7. Testing uncertainties:

ICP-MS

Due to the acetic acid matrix as well as the low element concentrations the relative expanded overall measurement uncertainty ($k = 2$, $p = 95\%$) are maximum 13 %.