

Test Report

No. SHAEC2013876501

Date: 07 Aug 2020

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The following sample(s) was/were submitted and identified on behalf of the clients as : UVC-Sanitizer Vacuum Bottle

SGS Job No. : SP20-022684 - SH
 Model No. : 620241
 Date of Sample Received : 21 Jul 2020
 Testing Period : 21 Jul 2020 - 06 Aug 2020
 Test Requested : Selected test(s) as requested by client.
 Test Method : Please refer to next page(s).
 Test Results : Please refer to next page(s).



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Result Summary :

Test Requested	Conclusion
German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 and 31 with amendments, European Commission Regulation (EU) No 10/2011 with amendments and BfR recommendation-Overall migration	PASS
German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 and 31 with amendments and BfR recommendation-Extractable component	PASS
German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 and 31 with amendments and BfR recommendation-Colour release	PASS
German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 and 31 with amendments and BfR recommendation-Sensorial examination odour and taste test	PASS
German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 with amendments, DIN 51032:2017-Leachable lead and cadmium	PASS
ALS Opinion Number 2017/15-Leachable cobalt	PASS
German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 and 31 with amendments, European Commission Regulation (EU) No 10/2011 with amendments and BfR recommendation-Specific migration of heavy metal	PASS
German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 and 31 with amendments and BfR recommendation-Lead(Pb) and cadmium(Cd)	PASS
German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 and 31 with amendments, European Commission Regulation (EU) No 10/2011 with amendments and BfR recommendation-Lead(Pb) and cadmium(Cd)	PASS
German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 and 31 with amendments and BfR recommendation-Volatile organic matter (VOM)	PASS
German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 and 31 with amendments, Commission Implementing Regulation (EU) 2018/213 of 12 February 2018 amending Regulation (EU) 10/2011 of 14 January 2011 and BfR recommendations-Bisphenol A	PASS
German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 and 31 with amendments and BfR recommendation-Polynuclear aromatic hydrocarbons (PAHs)	PASS
German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 and 31 with amendments, European Commission Regulation (EU) No 10/2011 with amendments and BfR recommendation-Polycyclic Aromatic Hydrocarbons (PAHs)	PASS



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German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB),
Section 30 and 31 with amendments, Council of Europe Resolution
CM/Res(2013)9 and BfR recommendation-Extractable heavy metals

PASS

Signed for and on behalf of
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.

Sunny Wu

Sunny Wu
Approved Signatory



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Test Results :

Test Part Description :

Specimen No.	SGS Sample ID	Description	Material (claimed by the client)
SN1	SHA20-138765.001	Silvery metal part	Stainless steel
SN2	SHA20-138765.002	Black soft solid	Silicone rubber
SN3	SHA20-138765.003	Black solid part	PP
SN4	SHA20-138765.004	Transparent glass	Glass

Remarks :

- (1) mg/dm² = milligram per square decimeter
- (2) mg/kg = milligram per kilogram
- (3) °C= degree Celsius
- (4) < = less than
- (5) MDL = Method Detection Limit
- (6) ND = Not Detected (< MDL)

German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 and 31 with amendments, European Commission Regulation (EU) No 10/2011 with amendments and BfR recommendation-Overall migration

Test Method : With reference to Commission Regulation (EU) No 10/2011 of 14 January 2011 Annex III and Annex V for selection of condition and EN 1186-1:2002 for selection of test methods;
EN1186-3:2002 aqueous food simulants by total immersion method;

Simulant Used	Time	Temperature	Max. Permissible Limit	Result of 003 Overall migration	Conclusion
20% Ethanol (V/V) Aqueous Solution	2.0hr(s)	70°C	10mg/dm ²	<3.0mg/dm ²	PASS
3% Acetic acid (W/V) aqueous solution	2.0hr(s)	70°C	10mg/dm ²	<3.0mg/dm ²	PASS

Notes :

- (1) Analytical tolerance of aqueous simulants is 2 mg/dm² or 12 mg/kg.
- (2) Test condition & simulant were specified by client.
- (3) Report the third migration result.

German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 and 31 with amendments and BfR recommendation-Extractable component



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Test Method : With reference to 61st Mitteilung über die Untersuchung von Kunststoffen ,
Bundesgesundheitsbl 46 (2003) 362

<u>Simulant Used</u>	<u>Time</u>	<u>Temperature</u>	<u>Max. Permissible</u> <u>Limit</u>	<u>Result of 002</u> <u>Extractives</u>	<u>Conclusion</u>
Deionized water	0.5hr(s)	100°C	0.5% (w/w)	<0.1% (w/w)	PASS
3% Acetic Acid	0.5hr(s)	100°C	0.5% (w/w)	<0.1% (w/w)	PASS

Notes :

(1) Test condition & simulant were specified by client

German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 and 31 with amendments and BfR recommendation-Colour release

Test Method : With reference to Kunststoffe im Lebensmittelverkehr, Part B II IX.

<u>Test Item(s)</u>	<u>Limit</u>	<u>002</u>	<u>003</u>
Colour release in Deionized water	★	Negative	Negative
Conclusion		PASS	PASS

Notes :

(1) ★ = No colour release.

(2) Negative = No color release observed, Positive = Color release observed.

German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 and 31 with amendments and BfR recommendation-Sensorial examination odour and taste test

Test Method : With reference to DIN 10955:2004
No. of panelist: 6

<u>Test Item(s)</u>	<u>Limit</u>	<u>002</u>	<u>003</u>
Test media	-	DW	DW
Test time (hr(s))	-	0.5	0.5
Temperature(°C)	-	100	100
Sensorial examination odour (Point scale)	2.5	0	0
Sensorial examination taste (Point scale)	2.5	0	0
Conclusion		PASS	PASS

Notes :

Scale evaluation:



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- 0 – no perceptible difference
- 1 – just perceptible difference
- 2 – slight difference
- 3 – marked difference
- 4 – strong difference
- DW= Distilled water

German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 with amendments, DIN 51032:2017-Leachable lead and cadmium

Test Method : With reference to EN 1388-2:1995, analysis was performed by AAS.

Sample 004

Flatware

PASS

	<u>Vol. of 4% acetic acid used (mL)</u>	<u>Surface area (dm²)</u>
1	5	0.03
	<u>Leachable lead (mg/dm²)</u>	<u>Leachable cadmium (mg/dm²)</u>
1	<0.1	<0.01
Limit	0.8	0.07

Notes :

- (1) Flatware: With an internal depth not exceeding 25mm, measured from the lowest point to the horizontal plane passing through the overflow point.
- (2) Hollowware: Those articles which do not fall into the category of Flatware.
- (3) Drinking rim: The drinking rim is a 20mm wide section of the external surface of a drinking vessel. The width is measured downwards from the upper edge along the wall of the vessel.



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Table 1
Permissible limits for articles made from ceramics, glass and glass ceramics

Items	Flatware		Hollow-ware	
	Lead mg/dm ²	Cadmium mg/dm ²	Lead mg/l	Cadmium mg/l
Table ware and kitchen utensils made of ceramics, glass and glass ceramics	0.8 ^a	0.07 ^a	4.0 ^a	0.3 ^a
Cooking and baking equipment, packaging containers, storage containers made of ceramic, glass and glass ceramics	0.4	0.05	1.5 ^a	0.1 ^a

Note: ^a In accordance with the EU directive on ceramic objects.

Table 2
Permissible limits for drinking rim

Lead mg/article	Cadmium mg/article
2.0	0.20

ALS Opinion Number 2017/15-Leachable cobalt

Test Method : With reference to EN 1388-2:1995, analysis was performed by ICP-OES.

Sample 004 Flatware
PASS

	Vol. of 4% Acetic acid used (mL)	Surface area (dm ²)
1	5	0.03

	Leachable cobalt (mg/dm ²)
1	<0.01

Limit 0.02

German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 and 31 with amendments, European Commission Regulation (EU) No 10/2011 with amendments and BfR recommendation-Specific migration of heavy metal

Test Method : With reference to EN13130-1:2004, analysis was performed by ICP-OES.

Sample 003

Simulant Used : 20% Ethanol (V/V) aqueous solution

Test Condition : 100 °C 0.5 hr(s)



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Test Item(s)	Max. Permissible Limit	Unit	MDL	Test result
Migration times	-	-	-	Third
Area/volume	-	dm ² /kg	-	6.0
Aluminium(Al)	1	mg/kg	0.1	ND
Barium(Ba)	1	mg/kg	0.25	ND
Cobalt(Co)	0.05	mg/kg	0.01	ND
Copper(Cu)	5	mg/kg	0.25	ND
Iron(Fe)	48	mg/kg	0.25	ND
Lithium(Li)	0.6	mg/kg	0.5	ND
Manganese(Mn)	0.6	mg/kg	0.25	ND
Zinc(Zn)	5	mg/kg	0.5	ND
Nickel(Ni)	0.02	mg/kg	0.02	ND
Conclusion				PASS

Notes :

(1) Test condition & simulant were specified by client.

German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 and 31 with amendments and BfR recommendation-Lead(Pb) and cadmium(Cd)

Test Method : Total lead and cadmium: Acidic digestion, analysis was performed by ICP-OES.

Test Item(s)	Limit	Unit	MDL	002
Total Lead	★	mg/kg	2	ND
Total Cadmium	★	mg/kg	2	ND
Conclusion				PASS

Notes :

(1) ★= Absent

German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 and 31 with amendments, European Commission Regulation (EU) No 10/2011 with amendments and BfR recommendation-Lead(Pb) and cadmium(Cd)

Test Method : Total Lead and Cadmium: Acidic digestion, analysis was performed by ICP-OES.



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Test Item(s)	Limit	Unit	MDL	003
Total Lead	★	mg/kg	2	ND
Total Cadmium	★	mg/kg	2	ND
Conclusion	PASS			

Notes :

(1) ★= Absent

German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 and 31 with amendments and BfR recommendation-Volatile organic matter (VOM)

Test Method : With reference to 61. Mitteilung über die Untersuchung von Kunststoffen, Bundesgesundheitsbl 46(2003)362

Test Item(s)	Limit	Unit	MDL	002
Time	-	hr(s)	-	4.0
Temperature	-	°C	-	200
Volatile organic matter (VOM)	0.5	% (w/w)	0.10	0.19
Conclusion	PASS			

Notes :

(1) %w/w =percentage of weight by weight

German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 and 31 with amendments, Commission Implementing Regulation (EU) 2018/213 of 12 February 2018 amending Regulation (EU) 10/2011 of 14 January 2011 and BfR recommendations-Bisphenol A

Test Method : With reference to Part II Section D2 of Testing Methods for Foodstuffs, Implements, Containers and Packaging, Toys, Detergents, JETRO, Japan External Trade Organization, 2009 (Dichloromethane extraction by ultrasonic bath). Analysis was performed by HPLC-MS.

Test Item(s)	Limit	Unit	MDL	002	003
Bisphenol-A	★	mg/kg	0.1	ND	ND
Conclusion	PASS PASS				

Notes :

(1) ★= Prohibited

German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 and 31 with amendments and BfR recommendation-Polynuclear aromatic hydrocarbons (PAHs)



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Test Method : With reference to AfPS GS 2014:01 PAK, analysis was performed by GC-MS.

Test Item(s)	Limit	Unit	MDL	002
Sum of 18 PAHs	1	mg/kg	-	ND
Sum of Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Pyrene, Anthracene, Fluoranthene	1	mg/kg	-	ND
Naphthalene(NAP)	1	mg/kg	0.1	ND
Acenaphthylene(ANY)	-	mg/kg	0.1	ND
Acenaphthene(ANA)	-	mg/kg	0.1	ND
Fluorene(FLU)	-	mg/kg	0.1	ND
Phenanthrene(PHE)	-	mg/kg	0.1	ND
Anthracene(ANT)	-	mg/kg	0.1	ND
Fluoranthene(FLT)	-	mg/kg	0.1	ND
Pyrene(PYR)	-	mg/kg	0.1	ND
Benzo(a)anthracene(BaA)	0.2	mg/kg	0.1	ND
Chrysene(CHR)	0.2	mg/kg	0.1	ND
Benzo(b)fluoranthene(BbF) and Benzo(j)fluoranthene(BjF)	0.2	mg/kg	0.1	ND
Benzo(k)fluoranthene(BkF)	0.2	mg/kg	0.1	ND
Benzo(a)pyrene(BaP)	0.2	mg/kg	0.1	ND
Benzo(e)pyrene(BeP)	0.2	mg/kg	0.1	ND
Indeno(1,2,3-c,d)pyrene(IPY)	0.2	mg/kg	0.1	ND
Dibenzo(a,h)anthracene(DBA)	0.2	mg/kg	0.1	ND
Benzo(g,h,i)perylene(BPE)	0.2	mg/kg	0.1	ND
Conclusion				PASS

German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 and 31 with amendments, European Commission Regulation (EU) No 10/2011 with amendments and BfR recommendation-Polycyclic Aromatic Hydrocarbons (PAHs)

Test Method : With reference to AfPS GS 2014:01 PAK, analysis was performed by GC-MS.

Test Item(s)	Limit	Unit	MDL	003
Sum of 18 PAHs	1	mg/kg	-	ND
Sum of Acenaphthylene, Acenaphthene, Fluorene, Phenanthrene, Pyrene, Anthracene, Fluoranthene	1	mg/kg	-	ND
Naphthalene(NAP)	1	mg/kg	0.1	ND
Acenaphthylene(ANY)	-	mg/kg	0.1	ND
Acenaphthene(ANA)	-	mg/kg	0.1	ND
Fluorene(FLU)	-	mg/kg	0.1	ND
Phenanthrene(PHE)	-	mg/kg	0.1	ND



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Test Item(s)	Limit	Unit	MDL	003
Anthracene(ANT)	-	mg/kg	0.1	ND
Fluoranthene(FLT)	-	mg/kg	0.1	ND
Pyrene(PYR)	-	mg/kg	0.1	ND
Benzo(a)anthracene(BaA)	0.2	mg/kg	0.1	ND
Chrysene(CHR)	0.2	mg/kg	0.1	ND
Benzo(b)fluoranthene(BbF) and Benzo(j)fluoranthene(BjF)	0.2	mg/kg	0.1	ND
Benzo(k)fluoranthene(BkF)	0.2	mg/kg	0.1	ND
Benzo(a)pyrene(BaP)	0.2	mg/kg	0.1	ND
Benzo(e)pyrene(BeP)	0.2	mg/kg	0.1	ND
Indeno(1,2,3-c,d)pyrene(IPY)	0.2	mg/kg	0.1	ND
Dibenzo(a,h)anthracene(DBA)	0.2	mg/kg	0.1	ND
Benzo(g,h,i)perylene(BPE)	0.2	mg/kg	0.1	ND
Conclusion	PASS			

German Food, Articles of Daily Use and Feed Code of September 1, 2005 (LFGB), Section 30 and 31 with amendments, Council of Europe Resolution CM/Res(2013)9 and BfR recommendation-Extractable heavy metals

Test Method : With reference to EN13130-1:2004, analysis was performed by by ICP-OES and ICP-MS.

Sample 001: PASS

Simulant Used : Artificial tap water

Test Condition : 100 °C 0.5 hr(s)

Volume : 500 mL

Test Item(s)	Limit	Unit	MDL	1st + 2nd Migration
Aluminium(Al)	35	mg/kg	0.2	ND
Antimony(Sb)	0.28	mg/kg	0.02	ND
Chromium(Cr)	1.75	mg/kg	0.1	ND
Cobalt(Co)	0.14	mg/kg	0.01	ND
Copper(Cu)	28	mg/kg	0.1	ND
Iron(Fe)	280	mg/kg	0.25	ND
Manganese(Mn)	12.6	mg/kg	0.25	ND
Molybdenum(Mo)	0.84	mg/kg	0.02	ND
Nickel(Ni)	0.98	mg/kg	0.05	ND
Silver(Ag)	0.56	mg/kg	0.03	ND
Tin (Sn)	700	mg/kg	5	ND
Vanadium(V)	0.07	mg/kg	0.005	ND
Zinc(Zn)	35	mg/kg	1	ND
Arsenic(As)	0.014	mg/kg	0.001	ND
Barium(Ba)	8.4	mg/kg	0.25	ND



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Test Item(s)	Limit	Unit	MDL	1st + 2nd Migration
Beryllium(Be)	0.07	mg/kg	0.005	ND
Cadmium(Cd)	0.035	mg/kg	0.002	ND
Lead(Pb)	0.07	mg/kg	0.005	ND
Lithium(Li)	0.336	mg/kg	0.02	ND
Mercury(Hg)	0.021	mg/kg	0.002	ND
Thallium(Tl)	0.0007	mg/kg	0.0001	ND
Magnesium(Mg)	-	mg/kg	5	ND
Titanium(Ti)	-	mg/kg	0.05	ND

Test Item(s)	Limit	Unit	MDL	3rd Migration
Aluminium(Al)	5	mg/kg	0.2	ND
Antimony(Sb)	0.04	mg/kg	0.02	ND
Chromium(Cr)	0.25	mg/kg	0.1	ND
Cobalt(Co)	0.02	mg/kg	0.01	ND
Copper(Cu)	4	mg/kg	0.1	ND
Iron(Fe)	40	mg/kg	0.25	ND
Manganese(Mn)	1.8	mg/kg	0.25	ND
Molybdenum(Mo)	0.12	mg/kg	0.02	ND
Nickel(Ni)	0.14	mg/kg	0.05	ND
Silver(Ag)	0.08	mg/kg	0.03	ND
Tin (Sn)	100	mg/kg	5	ND
Vanadium(V)	0.01	mg/kg	0.005	ND
Zinc(Zn)	5	mg/kg	1	ND
Arsenic(As)	0.002	mg/kg	0.001	ND
Barium(Ba)	1.2	mg/kg	0.25	ND
Beryllium(Be)	0.01	mg/kg	0.005	ND
Cadmium(Cd)	0.005	mg/kg	0.002	ND
Lead(Pb)	0.01	mg/kg	0.005	ND
Lithium(Li)	0.048	mg/kg	0.02	ND
Mercury(Hg)	0.003	mg/kg	0.002	ND
Thallium(Tl)	0.0001	mg/kg	0.0001	ND
Magnesium(Mg)	-	mg/kg	5	ND
Titanium(Ti)	-	mg/kg	0.05	ND

Notes :

- (1) Test condition & simulant were specified by client.
- (2) Requirement for repeat use article: According to Council of Europe Resolution CM/Res(2013)9, the result from 3rd migration shall comply with the Specific Release Limit (SRL) and the sum of 1st and 2nd migration shall not exceed seven times of SRL for repeated use articles
- (3) Acidic foodstuff is not considered for compliance.



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