

TEST REPORT

APPLICANT : Yongkang Raka Industry Co.,Ltd

ADDRESS : No.45, Changsheng Rd, Xiangzhu Town, Yongkang city,
Zhejiang, China

SAMPLE DESCRIPTION : Stainless steel mug, Stainless steel flask

MODEL NO. : 350ml mug, 560ml flask

BUYER : [REDACTED]

BUYER ADDRESS : [REDACTED]

PRODUCT MATERIAL : 304 SS inside, 201 SS outside, PP,PS,Silicone

COUFNTRY OF DESTIANTION : USA+EU

COUNTRY OF PRODUCTION : China

SAMPLE RECEIVED DATE : 12-Dec-2023

FURTHER INFORMATION DATE : 22-Dec-2023

TURN AROUND TIME : 12-Dec-2023 to 22-Dec-2023



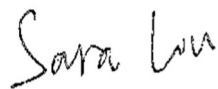
The following test item(s) was/were performed on submitted sample(s) and/or component(s) confirmed by applicant

TEST REQUESTED	TEST METHOD/REGULATION	RESULT
Overall Migration-PP,PS	Regulation (EU) No. 10/2011 and its amendments	Pass
Overall Migration-Silicone	Resolution AP (2004) 5	Pass
Specific Release of Heavy Metals	EU Resolution CM/Res (2013)9	Pass
Specific Migration of Heavy Metal	Regulation (EU) No. 10/2011 and its amendments	Pass
Specific Migration of Bisphenol A	Regulation (EU) No 10/2011 and its amendment	Pass
Total Chromium Content	US FDA GRAS	Pass
Density	FDA 21 CFR 177.1520	Pass
Extractable fraction in n-hexane	FDA 21 CFR 177.1520	Pass
Soluble fraction in xylene	FDA 21 CFR 177.1520	Pass
Melting point	FDA 21 CFR 177.1520	Pass
Total Extractives	FDA 21 CFR 177.2600	Pass
Total Residual Styrene Monomer	21 CFR 177.1640	Pass
Total Lead Content	US California Proposition 65	Pass
Phthalates Content	US California Proposition 65	Pass
Specific Migration of Primary Aromatic Amines	(EU) No 10/2011 and its amendments	Pass

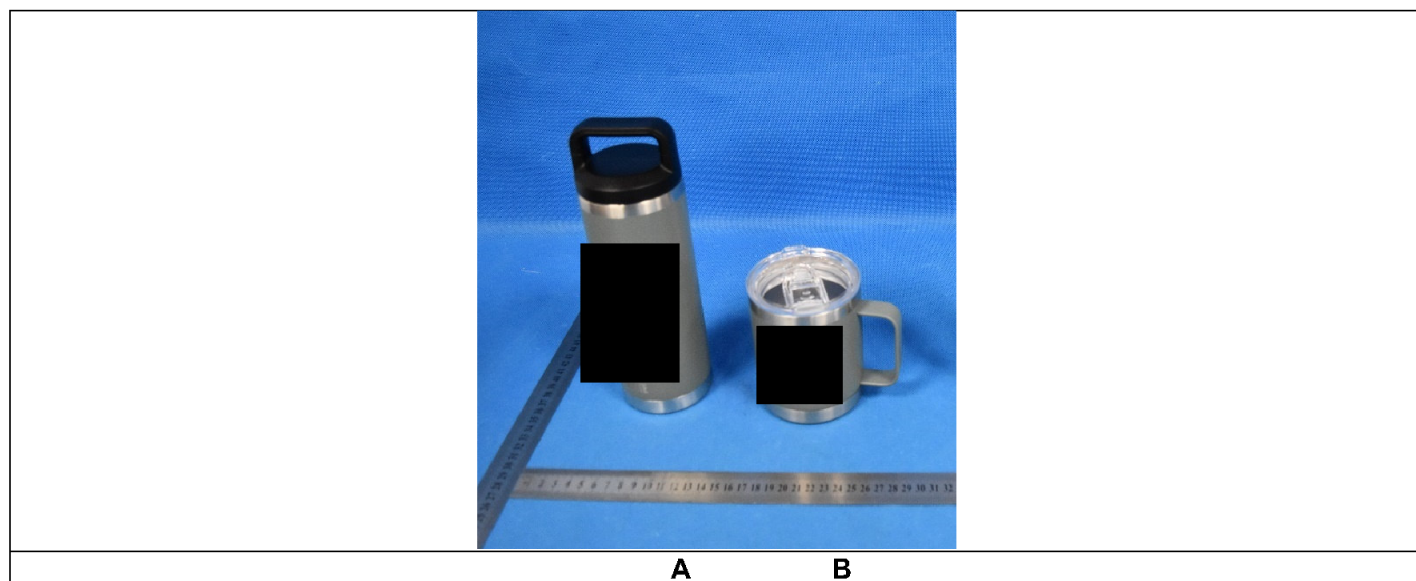
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Eurofins (Hangzhou) contact information**Customer service:** Joy.Lai@cpt.eurofinscn.com / +86 571 87203730**Sales specialist:** Frank.Lou@cpt.eurofinscn.com / +86 13967877138

***** FOR FURTHER DETAILS, PLEASE REFER TO THE FOLLOWING PAGE(S) *****

Signed for and on behalf of
Eurofins Product Testing Service (Hangzhou) Co., LtdSara Liu
Lab Manager

SAMPLE PHOTO(S)



EFHZ23121669-CG-01

TO BE CONTINUED

COMPONENT LIST

Component No.	Component	Sample No.
1	Green coating on metal	A,B
2	Silver stainless steel304 (inside)	A,B
3	Silver stainless steel201(outside)	A,B
4	Black PP lid	A
5	Transparent PS	B
6	White silicone	A,B

TO BE CONTINUED

TEST RESULT

Overall Migration-PP,PS

Test Request: To determine the Overall Migration in accordance with Commission Regulation (EU) No 10/2011 and its amendments relating to plastic materials and articles intended to come into contact with foodstuffs.

Test Method: With reference to EN1186-1:2002 for selection of conditions and test methods;
EN1186-3:2022 overall migration in evaporable simulants by total immersion method

Simulant Used	Time	Temperature	Unit	Limit	Result		
					4		
					1 st	2 nd	3 rd
Acetic Acid 3%	2hours	100°C	mg/dm ²	10	<3.0	<3.0	<3.0
Ethanol 50%	2hours	100°C	mg/dm ²	10	<3.0	<3.0	<3.0

Simulant Used	Time	Temperature	Unit	Limit	Result		
					5		
					1 st	2 nd	3 rd
Acetic Acid 3%	2hours	100°C	mg/dm ²	10	<3.0	<3.0	<3.0
Ethanol 50%	2hours	100°C	mg/dm ²	10	<3.0	<3.0	<3.0

Remark:

mg/dm² = milligram per square decimeter

Test condition & simulant were specified by client.

TO BE CONTINUED

TEST RESULT

Overall Migration-Silicone

Test Request: In accordance with Council of Europe Resolution AP (2004) 5.

Test Method: With reference to EN1186-1:2002 for selection of conditions and test methods;
EN1186-3:2022 overall migration in evaporable simulants by total immersion method

Simulant Used	Time	Temperature	Unit	Limit	Result		
					6		
					1 st	2 nd	3 rd
Acetic Acid 3%	2hours	100°C	mg/dm ²	10	<3.0	<3.0	<3.0
Ethanol 50%	2hours	100°C	mg/dm ²	10	<3.0	<3.0	<3.0

Remark:

mg/dm² = milligram per square decimeter

Test condition & simulant were specified by client.

TO BE CONTINUED

TEST RESULT

Specific Release of Heavy Metals

Test Request: In accordance with Resolution CM/Res (2013)9 on metals and alloys used in food contact materials and articles.

Test Method: With reference to Resolution CM/Res(2013)9, analysis was performed by ICP-MS.

Simulant Used: 0.5% Citric acid

Test Condition: 100°C 2hours

Test Item(s)	Unit	MDL	Result			
			2			
			1 st + 2 nd Migration		3 rd Migration	
			Result	7xSRL ^{*2}	Result	SRL ^{*1}
Aluminum (Al)	mg/kg	0.5	ND	35	ND	5
Antimony (Sb)	mg/kg	0.01	ND	0.28	ND	0.04
Chromium (Cr)	mg/kg	0.05	ND	1.75	ND	0.25
Cobalt (Co)	mg/kg	0.005	ND	0.14	ND	0.02
Copper (Cu)	mg/kg	0.5	ND	28	ND	4
Iron (Fe)	mg/kg	5	ND	280	ND	40
Manganese (Mn)	mg/kg	0.2	ND	12.6	ND	1.8
Molybdenum (Mo)	mg/kg	0.01	ND	0.84	ND	0.12
Nickel (Ni)	mg/kg	0.01	ND	0.98	ND	0.14
Silver (Ag)	mg/kg	0.01	ND	0.56	ND	0.08
Tin (Sn) ^{*3}	mg/kg	5	ND	700	ND	100
Vanadium (V)	mg/kg	0.001	ND	0.07	ND	0.01
Zinc (Zn)	mg/kg	0.5	ND	35	ND	5
Arsenic (As)	mg/kg	0.0005	ND	0.014	ND	0.002
Barium (Ba)	mg/kg	0.1	ND	8.4	ND	1.2
Beryllium (Be)	mg/kg	0.001	ND	0.07	ND	0.01
Cadmium (Cd)	mg/kg	0.001	ND	0.035	ND	0.005
Lead (Pb)	mg/kg	0.001	ND	0.07	ND	0.01
Lithium (Li)	mg/kg	0.005	ND	0.336	ND	0.048
Mercury (Hg)	mg/kg	0.0005	ND	0.021	ND	0.003
Thallium (Tl)	mg/kg	0.00005	ND	0.0007	ND	0.0001
Magnesium (Mg)	mg/kg	0.1	ND	-	ND	-
Titanium (Ti)	mg/kg	0.1	ND	-	ND	-

Remark:

mg/kg =milligram per kilogram

MDL = method detection limit

ND = not detected (<MDL)

SRL = Specific Release Limit

*1 Compliance is established on the result from the third migration test for repeated used articles.

*2 Meantime, the sum of the results of the first and second tests should not exceed 7 times the SRL

*3 Except in field of application under Regulation (EC) No.1881/2006.(canned food container)

Test condition & simulant were specified by client.

TO BE CONTINUED

TEST RESULT

Specific Migration of Heavy Metal

Test Requested: To determine the Specific Migration of Heavy Metal in accordance with Commission Regulation (EU) No 10/2011 and its amendments relating to plastic materials and articles intended to come into contact with foodstuffs.

Test Method: With reference to Regulation (EU) 10/2011 for selection of test condition and EN 13130-1:2004 for test preparation method; analysis was performed by ICP-MS.

Simulant used: 3% Acetic Acid (W/V) Aqueous Solution

Test condition: 100°C 2hours

Test Item(s)	Max. Permissible Limit	Unit	MDL	Test Result		
				4		
				1 st Test	2 nd Test	3 rd Test
Barium(Ba)	1	mg/kg	0.25	ND	ND	ND
Cobalt(Co)	0.05	mg/kg	0.01	ND	ND	ND
Copper(Cu)	5	mg/kg	0.25	ND	ND	ND
Iron(Fe)	48	mg/kg	0.25	ND	ND	ND
Lithium(Li)	0.6	mg/kg	0.5	ND	ND	ND
Manganese(Mn)	0.6	mg/kg	0.05	ND	ND	ND
Zinc(Zn)	5	mg/kg	0.5	ND	ND	ND
Aluminum(Al)	1	mg/kg	0.1	ND	ND	ND
Nickel(Ni)	0.02	mg/kg	0.01	ND	ND	ND
Antimony(Sb)	0.04	mg/kg	0.01	ND	ND	ND
Arsenic(As)	ND	mg/kg	0.01	ND	ND	ND
Cadmium(Cd)	ND	mg/kg	0.002	ND	ND	ND
Chromium(Cr)	ND	mg/kg	0.01	ND	ND	ND
Lead(Pb)	ND	mg/kg	0.01	ND	ND	ND
Mercury(Hg)	ND	mg/kg	0.01	ND	ND	ND
Europium(Eu)	-	mg/kg	0.01	ND	ND	ND
Gadolinium(Gd)	-	mg/kg	0.01	ND	ND	ND
Lanthanum(La)	-	mg/kg	0.01	ND	ND	ND
Terbium(Tb)	-	mg/kg	0.01	ND	ND	ND
Sum of all lanthanide substances	0.05	mg/kg	-	ND	ND	ND

TO BE CONTINUED

TEST RESULT

Test Item(s)	Max. Permissible Limit	Unit	MDL	Test Result		
				5		
				1 st Test	2 nd Test	3 rd Test
Barium(Ba)	1	mg/kg	0.25	ND	ND	ND
Cobalt(Co)	0.05	mg/kg	0.01	ND	ND	ND
Copper(Cu)	5	mg/kg	0.25	ND	ND	ND
Iron(Fe)	48	mg/kg	0.25	ND	ND	ND
Lithium(Li)	0.6	mg/kg	0.5	ND	ND	ND
Manganese(Mn)	0.6	mg/kg	0.05	ND	ND	ND
Zinc(Zn)	5	mg/kg	0.5	ND	ND	ND
Aluminum(Al)	1	mg/kg	0.1	ND	ND	ND
Nickel(Ni)	0.02	mg/kg	0.01	ND	ND	ND
Antimony(Sb)	0.04	mg/kg	0.01	ND	ND	ND
Arsenic(As)	ND	mg/kg	0.01	ND	ND	ND
Cadmium(Cd)	ND	mg/kg	0.002	ND	ND	ND
Chromium(Cr)	ND	mg/kg	0.01	ND	ND	ND
Lead(Pb)	ND	mg/kg	0.01	ND	ND	ND
Mercury(Hg)	ND	mg/kg	0.01	ND	ND	ND
Europium(Eu)	-	mg/kg	0.01	ND	ND	ND
Gadolinium(Gd)	-	mg/kg	0.01	ND	ND	ND
Lanthanum(La)	-	mg/kg	0.01	ND	ND	ND
Terbium(Tb)	-	mg/kg	0.01	ND	ND	ND
Sum of all lanthanide substances	0.05	mg/kg	-	ND	ND	ND

Remark:

- (1) mg/kg = milligram per kilogram
- (2) MDL = Method Detection Limit
- (3) ND = Not detected, less than MDL
- (4) Test condition & simulant were specified by client.

TO BE CONTINUED

TEST RESULT

Specific Migration of Bisphenol A

Test Request: To determine Specific Migration of Bisphenol A in accordance with Commission Regulation (EU) No 10/2011 and its amendments.
Test Method: With reference to EN 13130-1:2004, analysis was performed by LC-MS.
Simulant Used: 3% Acetic Acid (W/V) Aqueous Solution
Test Condition: 100°C 2hours

Test Item	Unit	Limit	MDL	Result		
				4		
				1 st Test	2 nd Test	3 rd Test
2,2-bis(4-hydroxyphenyl) Propane (Bisphenol A)	mg/kg	0.05	0.01	ND	ND	ND

Test Item	Unit	Limit	MDL	Result		
				5		
				1 st Test	2 nd Test	3 rd Test
2,2-bis(4-hydroxyphenyl) Propane (Bisphenol A)	mg/kg	0.05	0.01	ND	ND	ND

Remark:

- (1) mg/kg = milligram per kilogram
- (2) ND = not detected, less than MDL
- (3) MDL = method detection limit
- (4) Test condition & simulant were specified by client.

TO BE CONTINUED

TEST RESULT

Total Chromium Content

Test Request: To determine the Chromium content for the submitted sample(s) from client, in accordance with US FDA GRAS requirement on Stainless Steel used in food contact materials and articles.

Test Method: Sample was cut into pieces, then acid digested, and chromium analysis was performed by ICP-OES.

Test Item(s)	Unit	Limit	MDL	Result
				2
Chromium (Cr)	%	$\geq 16^*$	0.01	16.74

Remark:

“*” , As specified in NSF/ANSI 51-2021, stainless steel shall have a minimum chromium content of 16%
MDL = Method Detection Limit

Density

Test Request: In accordance with FDA 21 CFR 177.1520 for polypropylene used in contact with food.

Test Method: As specified in FDA 21 CFR 177.1520.

Test Item(s)	Limit	Result
		4
Density at 23°C, g/cm ³	0.880 – 0.913	0.903

Extractable fraction in n-hexane

Test Request: In accordance with FDA 21 CFR 177.1520 for polypropylene used in contact with food.

Test Method: As specified in FDA 21 CFR 177.1520.

Test Item(s)	Limit	Result
		4
Extractable fraction in n-hexane at reflux temperature, w/w%	6.4	0.6

TO BE CONTINUED

TEST RESULT

Soluble fraction in xylene

Test Request: In accordance with FDA 21 CFR 177.1520 for polypropylene used in contact with food.

Request:

Test Method: As specified in FDA 21 CFR 177.1520.

Test Item(s)	Limit	Result
		4
Soluble fraction in xylene at 25°C, w/w%	9.8	0.7

Melting point

Test Request: In accordance with FDA 21 CFR 177.1520 for polypropylene used in contact with food.

Request:

Test Method: As specified in FDA 21 CFR 177.1520.

Test Item(s)	Limit	Result
		4
Melting point, °C	160 – 180	168

Total Extractives

Test Request: In accordance with FDA 21 CFR 177.2600 to determining total extractives from rubber articles intended for repeated use.

Test Method: As specified in FDA 21 CFR 177.2600.

Simulant Used	Time	Temperature	Max. Permissible Limit	Result
				6
Distilled Water	7.0hr	Reflux temperature	20 mg/inch ²	<0.5 mg/inch ²
Succeeding Extraction	2.0hr	Reflux temperature	1 mg/inch ²	<0.5 mg/inch ²

Remark:

ND = Not detected, less than 0.5 mg/in²

Test simulant was specified by client.

Distilled Water for Aqueous food, n-Hexane for Fatty food

TO BE CONTINUED

TEST RESULT

Total Residual Styrene Monomer

Test Request: Total residual styrene monomer as specified in 21 CFR 177.1640 for polystyrene basic polymers used as components of articles intended for use in contact with non-fatty foods.

Test Method: According to 21 CFR 177.1640, solvent extraction and analyzed by GC-MS.

Tested Item(s)	CAS No.	Unit	Limit	MDL	Result
					5
Total Residual Styrene Monomer	100-42-5	%	1.0	0.01	0.031

Remark:

MDL = method detection limit

TO BE CONTINUED

TEST RESULT

Total Lead Content

Test Request: Total lead content as specified in US California Proposition 65

Test Method: EPA 3050B:1996, EPA 3051A:2007, EPA 3052:1996
Acid digestion/ microwave digestion method was used and total lead content was determined by ICP-OES.

Test Item(s)	Unit	Limit	MDL	Result	
				1	
Total Lead	mg/kg	90	10	ND	

Test Item(s)	Unit	Limit	MDL	Result	
				2+3	4+5+6
Total Lead	mg/kg	100	10	ND	ND

Remark:

According to client's request, tests are combination tests. The experimental results are the total result of mixed samples.

The limit(s) was/were referred from various court cases. Compliance with the above stated limit(s) does not show compliance with Proposition 65 or a guarantee against possible legal action but provides a relative level of assurance against potential lawsuits.

mg/kg = milligram per kilogram

MDL = method detection limit

ND = Not detected, less than MDL

TO BE CONTINUED

TEST RESULT

Phthalates Content

Test Request: Phthalates Content as specified in US California Proposition 65

Test Method: EPA 3550C:2007, EPA 8270E:2018, solvent extraction and quantification by GC-MS.

Test Item(s)	CAS No.	Unit	Limit	MDL	Result	
					1	4+5+6
Dibutylphthalate (DBP)	84-74-2	%	0.1	0.005	ND	ND
Benzyl butyl phthalate (BBP)	85-68-7	%	0.1	0.005	ND	ND
Diethylhexylphthalate (DEHP)	117-81-7	%	0.1	0.005	ND	ND
Diisononyl phthalate (DINP)	28553-12-0	%	0.1	0.005	ND	ND
Diisodecyl phthalate (DIDP)	26761-40-0	%	0.1	0.005	ND	ND
Phthalic acid, bis-hexyl ester (DnHP)	84-75-3	%	0.1	0.005	ND	ND

Remarks:

According to client's request, tests are combination tests. The experimental results are the total result of mixed samples.

MDL = method detection limit

ND = Not detected, less than MDL

The limit(s) was/were referred from various court cases.

Compliance with the above stated limit(s) does not show compliance with Proposition 65 or a guarantee against possible legal action but provides a relative level of assurance against potential lawsuits.

TO BE CONTINUED

TEST RESULT

Specific Migration of Primary Aromatic Amines

Test Request: Specific migration of primary aromatic amines as specified in Commission Regulation (EU) No 10/2011 and its amendments.

Test Method: With reference to EN 13130-1:2004 for sample preparation, analysis was performed by UV-VIS and LC-MS/MS.

Simulant Used: 3% Acetic Acid

Test Condition: 2h at 100°C

Test Item(s)	CAS No.	Unit	Limit	MDL	Result		
					4		
					1 st	2 nd	3 rd
1,3-phenylenediamine	108-45-2	mg/kg	0.002	0.002	ND	ND	ND
2,4,5-trimethylaniline	137-17-7	mg/kg	0.002	0.002	ND	ND	ND
2-methoxy-5-methylaniline	120-71-8	mg/kg	0.002	0.002	ND	ND	ND
2-naphthylamine	91-59-8	mg/kg	0.002	0.002	ND	ND	ND
3,3-dichlorobenzidine	91-94-1	mg/kg	0.002	0.002	ND	ND	ND
3,3-dimethoxybenzidine	119-90-4	mg/kg	0.002	0.002	ND	ND	ND
3,3-dimethylbenzidine	119-93-7	mg/kg	0.002	0.002	ND	ND	ND
4,4-methylene-bis-(2-chloro-aniline)	101-14-4	mg/kg	0.002	0.002	ND	ND	ND
4,4-methylenedianiline	101-77-9	mg/kg	0.002	0.002	ND	ND	ND
4,4-methylenendi-o-toluidine	838-88-0	mg/kg	0.002	0.002	ND	ND	ND
4,4-oxydianiline	101-80-4	mg/kg	0.002	0.002	ND	ND	ND
4,4-thiodianiline	139-65-1	mg/kg	0.002	0.002	ND	ND	ND
4-amino-azobenzene	60-09-3	mg/kg	0.002	0.002	ND	ND	ND
4-aminobiphenyl	92-67-1	mg/kg	0.002	0.002	ND	ND	ND
4-chloroaniline	106-47-8	mg/kg	0.002	0.002	ND	ND	ND
4-chloro-o-toluidine	95-69-2	mg/kg	0.002	0.002	ND	ND	ND
4-methoxy-m-phenylenediamine	615-05-4	mg/kg	0.002	0.002	ND	ND	ND
4-methyl-m-phenylenediamine	95-80-7	mg/kg	0.002	0.002	ND	ND	ND
5-nitro-o-toluidine	99-55-8	mg/kg	0.002	0.002	ND	ND	ND
benzidine	92-87-5	mg/kg	0.002	0.002	ND	ND	ND
o-aminoazotoluene	97-56-3	mg/kg	0.002	0.002	ND	ND	ND
o-anisidine	90-04-0	mg/kg	0.002	0.002	ND	ND	ND
o-toluidine	95-53-4	mg/kg	0.002	0.002	ND	ND	ND
Total of other Primary Aromatic Amines	-	mg/kg	0.01	0.01	ND	ND	ND

Remark:

mg/kg = milligram per kilogram

MDL = method detection limit

ND = Not detected, less than MDL

Total other primary aromatic amines are 1,4-phenylenediamine (CAS No.: 106-50-3), 2,4-dimethylaniline (CAS No.: 95-68-1), 2,6-dimethylaniline (CAS No.: 87-62-7), aniline (CAS No.: 62-53-3).

The test item is testing in Eurofins Internal laboratory.

END OF THE REPORT