



**SUBJECT** Chemical Test

**TEST LOCATION** TÜV SÜD China

TÜV SÜD Products Testing (Shanghai) Co., Ltd.  
B-3/4, No.1999 Du Hui Road, Minhang District  
Shanghai 201108, P.R. China

**CLIENT NAME** ZHEJIANG KEGE GLOBAL CO.,LTD.

**CLIENT ADDRESS** 35th Changyang Road, Hongtang Industrial C Area,  
Jiangbei, Ningbo, Zhejiang, China,315033

**TEST PERIOD** 06-Mar-2024~13-Mar-2024

**RESULT SUMMARY**

The tested items complied with the below regulations:

- Council of Europe Resolution CM/Res(2013)9
- Article 3 of Regulation (EC) No. 1935/2004 (Materials and articles intended to come into contact with food)
- Res AP (2004) 1 – Coatings intended to come into contact with foodstuffs
- Regulation (EU) 2018/213
- European COMMISSION REGULATION (EU) No 2020/1245, (EU) No 10/2011 and its amendments on plastic materials and articles intended to come into contact with food.
- France Law No. 2012-1442 of 24 December 2012 for the suspension of the manufacture, import, export and marketing of all-purpose food packaging containing bisphenol A
- Extractable Heavy Metal **PASS**
- Sensory test **PASS**
- Overall migration test **PASS**
- Specific migration of Primary Aromatic Amine **PASS**
- Specific migration of Bisphenol A **PASS**
- Specific migration of Terephthalic acid **PASS**
- Specific migration of Isophthalic acid **PASS**
- Specific migration of Glycol **PASS**
- Specific Migration of Heavy metal **PASS**
- Bisphenol A content **PASS**

**Prepared By**

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Report Drafter

**Authorized By**

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( Anna Chi )  
Authorized Signatory

**Note:** (1) General Terms & Conditions as mentioned overleaf. (2) The results relate only to the items tested.(3) The test report shall not be reproduced except in full without the written approval of the laboratory.(4) Without the agreement of the laboratory , the client is not authorized to use the test results for unapproved. propaganda


**SAMPLE SOURCE/ RECEIPT DATE / TEST DATE**

Logistics Express / 06-Mar-2024/ 06-Mar-2024

**THE FOLLOWING SAMPLE(S) WAS/WERE SUBMITTED**

**BY/ ON BEHALF OF THE CLIENTS AS**

Sample Name: 一次性覆膜铝杯  
Sample Specification: 9OZ/16OZ/20OZ  
Batch No./Date: 2024.2.22  
Manufacturer: /

SAMPLE NO.	DESCRIPTION	PHOTOGRAPH
721688664	Silvery cup	

**TEST RESULT(S)**

Note: The migration results in this report were tested and expressed based on single use articles.

1. Extractable Heavy Metal

- Test method: The sample was simulated in 0.5% Citric acid at 100°C for 0.5 hour. The heavy metal content of extracting solution was then analysed using by ICP-MS.

Test Item(s)	Result(s) [mg/kg]	Maximum Permissible Limit* [mg/kg]
Silver	<0.01	0.08
Aluminium	<0.01	5
Cobalt	<0.01	0.02
Chromium	<0.010	0.250
Copper	<0.01	4
Iron	<1.0	40
Magnesium	<0.01	--
Manganese	<0.10	1.8
Molybdenum	<0.01	0.12
Nickel	<0.01	0.14
Tin	<1.0	100



Titanium	<0.01	--
Vanadium	<0.001	0.01
Zinc	<0.10	5
Arsenic	<0.001	0.002
Barium	<0.01	1.2
Beryllium	<0.001	0.01
Cadmium	<0.001	0.005
Mercury	<0.001	0.003
Lithium	<0.010	0.048
Lead	<0.001	0.010
Antimony	<0.01	0.04
Thallium	<0.0001	0.0001

Note: \* denotes specification was quoted from Technical guide on metal and alloys used in food contact materials

2. Sensory test

- Test method: With reference to DIN 10955:2023-02.
- Test condition: Distilled water, 100°C for 0.5 hour
- Migration volume: 320ml

Sample(s)	Testing Parameter	Intensity result(s)	Description of the difference (from Intensity $\geq 2$ )	Recommended level
721688664	Transfer of look	0	NA	<3
	Transfer of taste	0	NA	<3
	Transfer of smell	0	NA	<3

- Note:
1. NA denotes Not Applicable
  2. Available Intensity scale are listed as follow:  
Intensity scale: 0: No perceptible look/taste/smell deviation  
1: Just perceptible look/taste/smell deviation  
2: Weak look/taste/smell deviation  
3: Clear look/taste/smell deviation  
4: Strong look/taste/smell deviation



3. Overall Migration Test

- Test method: With reference to EN 1186-3:2022
- Migration ratio(S/V): 1.77dm<sup>2</sup>/260ml

Simulant(s) Used	Test Condition	Result(s) [mg/dm <sup>2</sup> ]	Maximum Permissible Limit [mg/dm <sup>2</sup> ]
10% Ethanol	100°C for 0.5 hour	<3.00	10
3% Acetic acid	100°C for 0.5 hour	<3.00	10

4. Specific migration of Primary Aromatic Amine

- Test method: With reference to EN 13130-1:2004, followed by Kunststoffe im Lebensmittelverkehr, Book 2, Teil B II,XXI
- Migration ratio(S/V): 2.57dm<sup>2</sup>/420ml
- Test condition: 3% Acetic acid, 100°C for 0.5 hour

Test Item(s)	Result(s) [mg/kg]	Maximum Permissible Limit [mg/kg]
Primary Aromatic Amine	<0.01	0.01

- Test condition: 10% Ethanol, 100°C for 0.5 hour

Test Item(s)	Result(s) [mg/kg]	Maximum Permissible Limit [mg/kg]
Primary Aromatic Amine	<0.01	0.01

5. Specific Migration of Bisphenol A

- Test method: With reference to CEN/TS 13130-13:2005
- Migration ratio(S/V): 2.57dm<sup>2</sup>/420ml
- Test condition: 3% Acetic acid, 100°C for 0.5 hour

Test Item(s)	Result(s) [mg/kg]	Maximum Permissible Limit [mg/kg]
Bisphenol A	<0.01	0.05

- Test condition: 10% Ethanol, 100°C for 0.5 hour

Test Item(s)	Result(s) [mg/kg]	Maximum Permissible Limit [mg/kg]
Bisphenol A	<0.01	0.05

6. Specific Migration of Terephthalic acid

- Test method: With reference to BS EN 13130-2:2004
- Migration ratio(S/V): 2.57dm<sup>2</sup>/420ml
- Test condition: 3% Acetic acid, 100°C for 0.5 hour

Test Item(s)	Result(s) [mg/kg]	Maximum Permissible Limit [mg/kg]
Terephthalic acid	<1	7.5

- Test condition: 10% Ethanol, 100°C for 0.5 hour

Test Item(s)	Result(s) [mg/kg]	Maximum Permissible Limit [mg/kg]
Terephthalic acid	<1	7.5

7. Specific Migration of Isophthalic acid

- Test method: With reference to 13130-1:2004 followed by HPLC
- Migration ratio(S/V): 2.57dm<sup>2</sup>/420ml
- Test condition: 3% Acetic acid, 100°C for 0.5 hour

Test Item(s)	Result(s) [mg/kg]	Maximum Permissible Limit [mg/kg]
Isophthalic acid	<1	5

- Test condition: 10% Ethanol, 100°C for 0.5 hour

Test Item(s)	Result(s) [mg/kg]	Maximum Permissible Limit [mg/kg]
Isophthalic acid	<1	5

8. Specific Migration of Glycol

- Test method: With reference to BS EN 13130-7:2004
- Migration ratio(S/V): 2.57dm<sup>2</sup>/420ml
- Test condition: 3% Acetic acid, 100°C for 0.5 hour

Test Item(s)	Result(s) [mg/kg]	Maximum Permissible Limit [mg/kg]
Glycol	<3	30

- Test condition: 10% Ethanol, 100°C for 0.5 hour

Test Item(s)	Result(s) [mg/kg]	Maximum Permissible Limit [mg/kg]
Glycol	<3	30

9. Specific migration of Heavy metals

- Test method: With reference to EN13130-1:2004, followed by ICP-MS.
- Migration ratio(S/V): 2.57dm<sup>2</sup>/420ml
- Test condition: 3% Acetic acid, 100°C for 0.5 hour

Test Item(s)	Result(s) [mg/kg]	Maximum Permissible Limit [mg/kg]
Lithium (Li)	<0.1	0.6
Aluminium (Al)	<0.1	1
Chromium (Cr)	ND	ND (DL:0.01)



Manganese (Mn)	<0.1	0.6
Iron (Fe)	<5	48
Cobalt (Co)	<0.01	0.05
Nickel (Ni)	<0.01	0.02
Copper (Cu)	<1	5
Zinc (Zn)	<1	5
Arsenic (As)	ND	ND (DL:0.01)
Cadmium (Cd)	ND	ND (DL:0.002)
Antimony (Sb)	<0.01	0.04
Barium (Ba)	<0.1	1
Mercury (Hg)	ND	ND (DL:0.01)
Lead (Pb)	ND	ND (DL:0.01)
Lanthanum (La)	<0.01	0.05
Europium (Eu)	<0.01	0.05
Gadolinium (Gd)	<0.01	0.05
Terbium (Tb)	<0.01	0.05
Sum of [La, Eu, Gd, Tb]	<0.04	0.05

- Test condition: 10% Ethanol, 100°C for 0.5 hour

Test Item(s)	Result(s) [mg/kg]	Maximum Permissible Limit [mg/kg]
Lithium (Li)	<0.1	0.6
Aluminium (Al)	<0.1	1
Chromium (Cr)	ND	ND (DL:0.01)
Manganese (Mn)	<0.1	0.6
Iron (Fe)	<5	48
Cobalt (Co)	<0.01	0.05
Nickel (Ni)	<0.01	0.02
Copper (Cu)	<1	5
Zinc (Zn)	<1	5
Arsenic (As)	ND	ND (DL:0.01)



Cadmium (Cd)	ND	ND (DL:0.002)
Antimony (Sb)	<0.01	0.04
Barium (Ba)	<0.1	1
Mercury (Hg)	ND	ND (DL:0.01)
Lead (Pb)	ND	ND (DL:0.01)
Lanthanum (La)	<0.01	0.05
Europium (Eu)	<0.01	0.05
Gadolinium (Gd)	<0.01	0.05
Terbium (Tb)	<0.01	0.05
Sum of [La, Eu, Gd, Tb]	<0.04	0.05

Note: 1. DL denotes Detection Limit  
2. ND denotes Not Detected and less than Detection Limit.

10. Bisphenol A content

- Test method: With reference to in house method, analysed by LC/MS/MS

Test item(s)	Result(s) [mg/kg]	Maximum Permissible Limit [mg/kg]
Bisphenol A content	ND	Not Detected (DL:0.1)

Note: DL denotes Detection Limit, ND denotes Not Detected and less than Detection Limit.

Per client's request, add untested product's photo to annex:



Note: This report is for internal use only such as internal scientific research, education, quality control, product R&D.

-END OF THE TEST REPORT-