

TEST REPORT

<u>APPLICANT</u>	: Mid Ocean Hong Kong Ltd.
<u>ADDRESS</u>	: 7/F, Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong.
<u>SAMPLE DESCRIPTION</u>	: Reusable single wall coffee cup in recycled PP
<u>ITEM NO.</u>	: MO2256
<u>VENDOR CODE</u>	: 111034
<u>SAMPLE RECEIVED DATE</u>	: 17-Nov-2023
<u>TURN AROUND TIME</u>	: 17-Nov-2023 to 28-Nov-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
Total Lead Content	REACH Annex XVII, Entry 63	Pass
Total Cadmium Content	REACH Annex XVII, Entry 23	Pass
Phthalates Content	REACH Annex XVII, Entry 51 & 52	Pass
Polycyclic Aromatic Hydrocarbons (PAHs)	REACH Annex XVII, Entry 50	Pass
Bisphenol A (BPA) Content	EPA 3550C:2007, EPA 8321B:2007	See Test Result
Overall Migration	(EU) No 10/2011 and its amendments	Pass
Specific Migration of Primary Aromatic Amines	(EU) No 10/2011 and its amendments	Pass
Mechanical dishwashing resistance of utensils-Part 1: Reference test method for domestic articles	BS EN 12875-1:2005	See Test Result
Mechanical dishwashing resistance of utensils-Part 2: Inspection of non-metallic articles	BS EN 12875-2:2001	See Test Result
Specific Migration of Heavy Metals	(EU) No 10/2011 and its amendments	Pass
Specific Migration of Heavy Metals(Ca, Mg, K, Na)	In House Method	See Test Result

Samples are obtained by express delivery, Results obtained refer only to samples, products or material received in Laboratory, as described in point related to sample description, and tested in conditions shown in present report. Eurofins Product Testing Service (Shanghai) Co., Ltd ensures that this job has been performed according to our Quality System and complying contract and legal conditions. If you happen to have any comments, please do it by sending email to info.sh@eurofins.com and referring to this report number. Reproduction of this document is only valid if it is done completely and under the written permission of Eurofins Product Testing Service (Shanghai) Co., Ltd. If you happen to have any complaints, please do it by sending email to chinacomplaint@eurofins.com and referring to this report number.



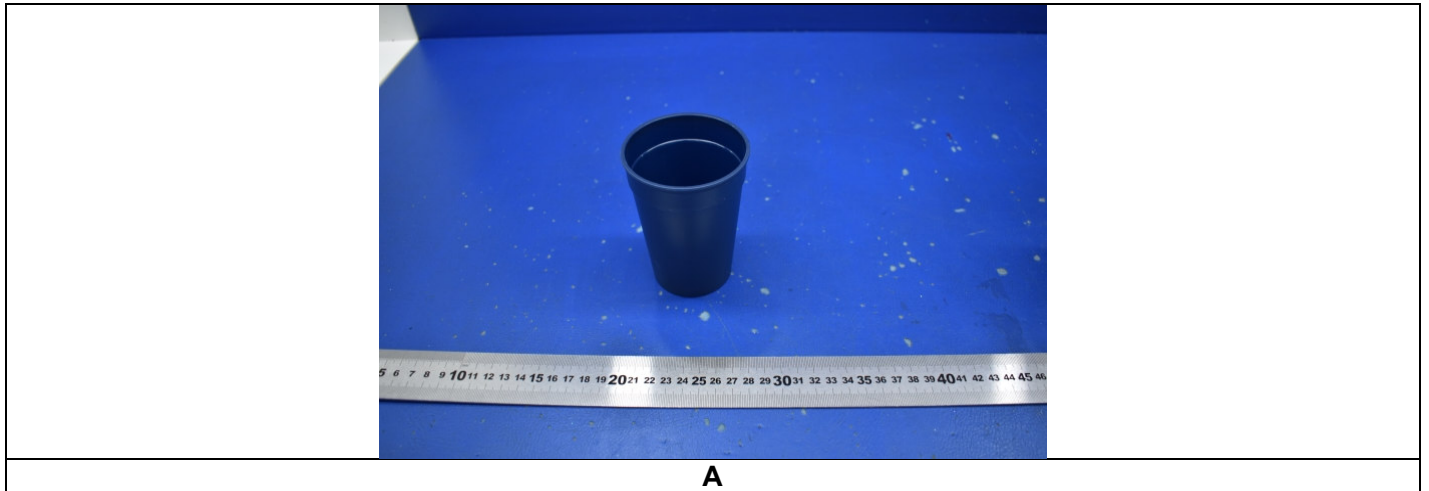
Eurofins (Shanghai) contact information**Customer service:** SunnyZhang@eurofins.com/ +86 216 1819 181**Sales specialist:** Jack.Zhang@cpt.eurofinscn.com/ +86 18601770010

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

Signed for and on behalf of
Eurofins Product Testing Service (Shanghai) Co., Ltd

Conny Li
Assistant Lab Manager

TEST SAMPLE PHOTO(S)



EFSH23111313-CG-01

TO BE CONTINUED

REFERENCE SAMPLE PHOTO(S)



The reference sample(s) has not been tested in current report, but according to customer's request, the picture has also been included. For sample tested in current report, please refer to "Test sample photo".

TO BE CONTINUED

COMPONENT LIST

Component No.	Component	Sample No.
1	Blue plastic	A
2	Blue PP plastic	A

TO BE CONTINUED

TEST RESULT

Total Lead Content

Test Request: Total lead content as specified in entry 63 of annex XVII of REACH Regulation (EC) No 1907/2006 and its amendment Regulation (EU) No 2015/628.

Test Method: EPA 3050B:1996, EPA 3051A:2007, EPA 3052:1996, acid digestion/ microwave digestion method was used, analysis was performed by ICP-OES.

Test Item(s)	Unit	Limit	MDL	Result
				1
Lead (Pb)	mg/kg	500	10	ND

Remark:

mg/kg = milligram per kilogram

MDL = method detection limit

ND = Not detected, less than MDL

Total Cadmium Content

Test Request: Total cadmium content as specified in Commission Regulation (EU) 2016/217 amending entry 23 of Annex XVII of REACH Regulation (EC) No 1907/2006.

Test Method: EPA 3050B:1996, EPA 3052:1996, EN 1122:2001 Method B, acid digestion method was used and total cadmium content was determined by ICP-OES.

Test Item(s)	Unit	Limit	MDL	Result
				1
Cadmium (Cd)	mg/kg	100	5	ND

Remark:

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 entry 51&52 of annex XVII of REACH Regulation (EC) No 1907/2006 and its amendment Commission Regulation (EU) 2018/2005.

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
Di-n-butyl phthalate (DBP)	84-74-2	%	-	0.0050	ND
Benzylbutyl phthalate (BBP)	85-68-7	%	-	0.0050	ND
Diethylhexyl phthalate (DEHP)	117-81-7	%	-	0.0050	ND
Diisobutyl phthalate (DIBP)	84-69-5	%	-	0.0050	ND
Sum of DEHP, DBP, BBP, DIBP	-	%	0.1	-	ND
Di-n-octyl phthalate (DNOP)	117-84-0	%	-	0.0050	ND
Diisononyl phthalate (DINP)	28553-12-0	%	-	0.0050	ND
Diisodecyl phthalate (DIDP)	26761-40-0	%	-	0.0050	ND
Sum of DNOP, DINP, DIDP	-	%	0.1	-	ND

Remarks:

MDL = method detection limit

ND = Not detected, less than MDL

"-"= Not Regulated

TO BE CONTINUED

TEST RESULT

Polycyclic Aromatic Hydrocarbons (PAHs)

Test Request: Polycyclic Aromatic Hydrocarbons (PAHs) content as specified in entry 50 of Annex XVII of REACH Regulation (EC) No 1907/2006 and its latest amendment.

Test Method: Solvent extraction and quantification by gas chromatography-mass selective detection (GC-MS) with respect to AfPS GS 2019:01 PAK

Test Item(s)	CAS No.	Unit	Limit	MDL	Result
					1
Benzo(a)anthracene	56-55-3	mg/kg	1	0.1	ND
Chrysene	218-01-9	mg/kg	1	0.1	ND
Benzo(b)fluoranthene	205-99-2	mg/kg	1	0.1	ND
Benzo(j)fluoranthene	205-82-3	mg/kg	1	0.1	ND
Benzo(k)fluoranthene	207-08-9	mg/kg	1	0.1	ND
Benzo(a)pyrene	50-32-8	mg/kg	1	0.1	ND
Dibenzo(a,h)anthracene	53-70-3	mg/kg	1	0.1	ND
Benzo(e)pyrene	192-97-2	mg/kg	1	0.1	ND

Remarks:

mg/kg = milligram per kilogram

MDL = method detection limit

ND = Not detected, less than MDL

Bisphenol A (BPA) Content

Test Request: Bisphenol A content as per client's request.

Test Method: With reference to EPA 3550C:2007, EPA 8321B:2007, analysis was performed by LC-MS.

Test Item(s)	CAS No.	Unit	MDL	Result
				1
Bisphenol A	80-05-7	mg/kg	0.1	ND

Remarks:

mg/kg = milligram per kilogram

MDL = method detection limit

ND = Not detected, less than MDL

TO BE CONTINUED

TEST RESULT

Overall Migration

Test Request: To determine the Overall Migration for compliance 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: According to appropriate method of EN1186-3:2022 method 1a, method 2, method 5 for evaporable simulants, EN 1186-2:2022 method 1 for fatty food simulants.

Simulant Used	Time	Temperature	Unit	Limit	Result		
					2		
					1 st	2 nd	3 rd
3% Acetic Acid	2h	70° C	mg/dm ²	10	<3.0	<3.0	<3.0
50% Ethanol	2h	70° C	mg/dm ²	10	<3.0	<3.0	<3.0

Remark:

mg/dm² = milligram per square decimeter

Analytical tolerance of evaporable simulants is 2 mg/dm²

Analytical tolerance of fatty food simulant (olive oil) is 3 mg/dm²

Test condition & simulant were specified by client.

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: 70° C 2h

Test Item(s)	CAS No.	Unit	Limit	MDL	Result		
					2		
					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).

TO BE CONTINUED

TEST RESULT

BS EN 12875-1:2005 Mechanical dishwashing resistance of utensils-Part 1: Reference test method for domestic articles

1) Number of tested sample: 1 Piece

2) Number of controlled sample: 1 Piece

3) Test Procedure

Clause	Test item	Test methods
8.1	Preparation of test dish washer	When testing metal articles, after each regeneration of the ion exchanger with sodium chloride, run one test cycle(see 8.3) with no test specimens
8.2	Loading the test dishwasher	The test dishwasher shall be fully loaded, using dummy articles to fill excess capacity if necessary. Each specimen shall be placed in the appropriate basket making sure that the specimens will not come into contact with each other during testing. All surfaces shall be equally exposed to the water spray, and the specimens shall be positioned in a way that avoids the formation of water pools. It is permissible to simultaneously wash several different types of domestic articles of ceramic, glass, metal or plastics. Note The risk of interaction between different materials should be considered. Where there is such a risk, such specimens should not be tested together. If it is necessary to withdraw a test specimen during the test, it shall be replaced by a similar article.
8.3	Test cycle	The test cycle shall comprise the stages specified in EN 12875-1:2005
8.4	Parameter control	The parameters of the test cycle listed below shall be verified before starting the first test cycle and after every <u> 10 </u> th test cycles . as per client's request The temperature of the test is <u> 65 </u> °C.
8.5	Number of test cycles	Subject specimens to <u> 10 </u> test cycles, as per client's request

4) Test result:

BS EN 12875-2:2001 Mechanical dishwashing resistance of utensils-Part 2: Inspection of non-metallic articles

After 10 cycle(s)

Product No	Color	Gloss	Clouding	Resistant deposites and iridescent layers	Other aspects
A	0	0	0	0	0

Table 1 – Inspection criteria

TO BE CONTINUED

TEST RESULT

Articles with or without decoration	Colour ⁽¹⁾	gloss	Clouding	Resistant deposits and iridescent layers ⁽²⁾	Other aspects
Ceramic tableware	+	+		+	+(3) (4) (5)
Glass, glass ceramic ware	+	+	+(6)	+	+ (4) (5)
Vitreous enameled tableware	+	+		+	+(3) (4) (5)
Plastic articles	+	+	+(6)	+	+(3)(7)

(+) = to be inspected

- (1) If several colours are present on one article to be inspected, the colour with the greatest change shall be chosen.
- (2) For the elimination of easily removable deposits.
- (3) e.g. crazing.
- (4) The adherence of decorations shall be tested by repeated wiping with a moist cloth under slight pressure.
- (5) Abrasion which is caused by friction during the dishwasher treatment shall be disregarded.
- (6) Transparent articles only
- (7) Swelling, deformation, cracking, or delamination

Table 2 – Evaluation of inspection criteria

Classification	Rating
0	No visible change
1	First discernible change
2	Clearly visible change

Remark:

The test was subcontracted to Eurofins Product Testing Service (Shanghai) Co., Ltd. Hangzhou Branch

TO BE CONTINUED

TEST RESULT

Specific Migration of Heavy Metals

Test method : The concentration of the following elements is examined by means of inductively coupled plasma mass spectroscopy.

Limit according to Regulation (EU) No 10/2011 and its amendments.

Test condition :

Food simulant	Test duration/temperature
3% Acetic Acid	2 hours / 70°C

Testing Material No.		2			Detection limit	Limit
Parameter	Unit	Test result				
		1 st	2 nd	3 rd		
Barium (Ba)	mg/kg	ND	ND	ND	0.1	1
Cobalt (Co)	mg/kg	ND	ND	ND	0.01	0.05
Copper (Cu)	mg/kg	ND	ND	ND	0.1	5
Iron (Fe)	mg/kg	ND	ND	ND	1	48
Lithium (Li)	mg/kg	ND	ND	ND	0.1	0.6
Manganese (Mn)	mg/kg	ND	ND	ND	0.1	0.6
Zinc (Zn)	mg/kg	ND	ND	ND	1	5
Aluminum (Al)	mg/kg	ND	ND	ND	0.1	1
Nickel (Ni)	mg/kg	ND	ND	ND	0.01	0.02
Arsenic (As)	mg/kg	ND	ND	ND	0.01	ND
Antimony (Sb)	mg/kg	ND	ND	ND	0.01	0.04
Cadmium (Cd)	mg/kg	ND	ND	ND	0.002	ND
Chromium (Cr)	mg/kg	ND	ND	ND	0.01	ND
Europium (Eu)	mg/kg	ND	ND	ND	0.01	0.05
Gadolinium (Gd)	mg/kg	ND	ND	ND	0.01	
Lanthanum (La)	mg/kg	ND	ND	ND	0.01	
Terbium (Tb)	mg/kg	ND	ND	ND	0.01	
Lead (Pb)	mg/kg	ND	ND	ND	0.01	ND
Mercury (Hg)	mg/kg	ND	ND	ND	0.01	ND

Note:

1 mg/kg = 1 ppm = 0.0001%

°C = degree Celsius

ND = Not Detected

The test item is tested in Eurofins Internal laboratory.

TO BE CONTINUED

TEST RESULT

Specific Migration of Heavy Metals (Ca, Mg, K, Na)

Test method : The concentration of the following elements is examined by ICP-MS/IC.

Test condition :

Food simulant	Test duration/temperature
3% Acetic Acid	2 hours / 70°C

Testing Material No.		2			Detection limit
Parameter	Unit	Test result			
		1 st	2 nd	3 rd	
Calcium(Ca)	mg/kg	ND	ND	ND	1
Magnesium(Mg)	mg/kg	ND	ND	ND	0.1
Kalium(K)	mg/kg	ND	ND	ND	0.1
Sodium(Na)	mg/kg	ND	ND	ND	1

Note:

1 mg/kg = 1 ppm = 0.0001%

°C = degree Celsius

ND = Not Detected

The test item is tested in Eurofins Internal laboratory.

END OF THE REPORT