TEST REPORT

Applicant	:	Mid Ocean Hong Kong Ltd.
Address	:	7/F, Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, HongKong
Sample description	:	MO2607 Reusable single wall cup in PLA; MO2743 PLA Cutlery set
Model no.	:	MO2607; MO2743
Material no	:	PLA
Sample received date	:	08-May-2025
Turn around time	:	08-May-2025 To 16-May-2025

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

TEST REQUESTED	TEST METHOD/REGULATION	RESULT
Phthalates Content	REACH Annex XVII, Entry 51 & 52	Pass
Polycyclic Aromatic Hydrocarbons (PAHs)	REACH Annex XVII, Entry 50	Pass
Total Cadmium Content	REACH Annex XVII, Entry 23	Pass
Total Lead Content	REACH Annex XVII, Entry 63	Pass
Bisphenol A (BPA) Content	DGCCRF French Decree No. 2007-766	Pass
Overall Migration	(EU) No 10/2011 and its amendments	Pass
Overall Migration	DGCCRF French Decree No. 2007-766	Pass
Specific Migration of Primary Aromatic Amines	(EU) No 10/2011 and its amendments	Pass
Specific Migration of Primary Aromatic Amines	DGCCRF French Decree No. 2007-766	Pass
Specific Migration of Heavy Metal	(EU) No 10/2011 and its amendments	Pass
Specific Migration of Heavy Metal	DGCCRF French Decree No. 2007-766	Pass
Specific Migration of Heavy Metals(Ca, Mg, K, Na)	In House Test Method	Pass

Eurofins（Shanghai）contact information
Customer service: Winnie.Dong@cpt.eurofinscn.com
Sales specialist: Lily.Li@cpt.eurofinscn.com

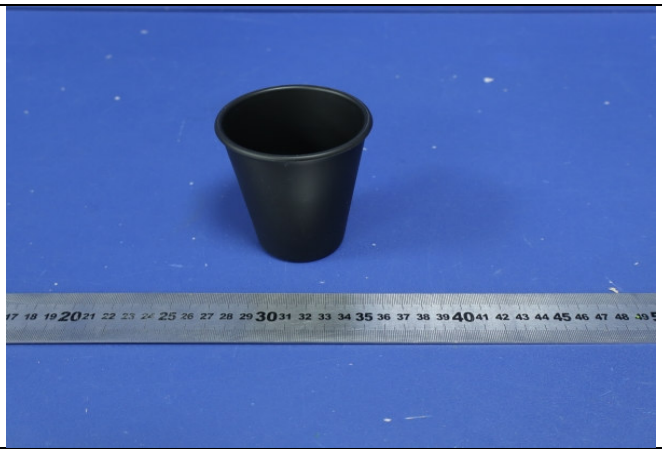
********** FOR FURTHER DETAILS, PLEASE REFER TO THE FOLLOWING PAGE(S) **********

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

Linda Jin

Linda Jin
Chemical Division Assistant Manager SLTH

TEST SAMPLE PHOTO(S)

	
A	B

EFW525050686-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	Black plastic	A
2	Black silicone	B
3	Black plastic spoon	B

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	2
Di-n-butyl phthalate (DBP)	84-74-2	%	-	0.005	ND	ND
Benzylbutyl phthalate (BBP)	85-68-7	%	-	0.005	ND	ND
Diethylhexyl phthalate (DEHP)	117-81-7	%	-	0.005	ND	ND
Di-iso-butyl phthalate (DIBP)	84-69-5	%	-	0.005	ND	ND
Sum of DEHP+DBP+BBP+DIBP	-	%	0.1	-	ND	ND
Di-n-octyl phthalate (DNOP)	117-84-0	%	-	0.005	ND	ND
Diisononyl phthalate (DINP)	28553-12-0	%	-	0.005	ND	ND
Diisodecyl phthalate (DIDP)	26761-40-0	%	-	0.005	ND	ND
Sum of DNOP, DINP, DIDP	-	%	0.1	-	ND	ND

Remarks:
As per client's request, only the appointed materials have been tested.
MDL = method detection limit
ND = Not detected, less than MDL
"-"= Not Regulated

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	2
Benzo(a)anthracene	56-55-3	mg/kg	1	0.1	ND	ND
Chrysene	218-01-9	mg/kg	1	0.1	ND	ND
Benzo(b)fluoranthene	205-99-2	mg/kg	1	0.1	ND	ND
Benzo(j)fluoranthene	205-82-3	mg/kg	1	0.1	ND	ND
Benzo(k)fluoranthene	207-08-9	mg/kg	1	0.1	ND	ND
Benzo(a)pyrene	50-32-8	mg/kg	1	0.1	ND	ND
Dibenzo(a,h)anthracene	53-70-3	mg/kg	1	0.1	ND	ND
Benzo(e)pyrene	192-97-2	mg/kg	1	0.1	ND	ND

Remarks:
As per client's request, only the appointed materials have been tested.
mg/kg = milligram per kilogram
MDL = method detection limit
ND = Not detected, less than MDL

TO BE CONTINUED

TEST RESULT

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	2
Cadmium (Cd)	mg/kg	100	5	ND	ND

Remark:
As per client's request, only the appointed materials have been tested.
mg/kg = milligram per kilogram
MDL = method detection limit
ND = Not detected, less than MDL

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	2
Lead (Pb)	mg/kg	500	10	ND	ND

Remark:
As per client's request, only the appointed materials have been tested.
mg/kg = milligram per kilogram
MDL = method detection limit
ND = Not detected, less than MDL

TO BE CONTINUED

TEST RESULT

Bisphenol A (BPA) Content

Test Request: In accordance with French Décret 2007-766 and its amendment, French Law 2012-1442 of 24 Dec 2012.

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

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

Remarks:
mg/kg = milligram per kilogram
MDL = method detection limit
ND = Not detected, less than MDL

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		
					1		
					1st	2nd	3rd
3% Acetic Acid	2h	70°C	mg/dm²	10	4.7	<3.0	<3.0
50% Ethanol	2h	70°C	mg/dm²	10	3.6	<3.0	<3.0

Simulant Used	Time	Temperature	Unit	Limit	Result		
					3		
					1st	2nd	3rd
Oil	2h	70°C	mg/dm²	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

Overall Migration

Test Request: To determine the Overall Migration for compliance with French Décret 2007-766 with its amendments and Fiche MCDA n°3 (V03-09/09/2021) Organic materials made of synthetic material.

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		
					1		
					1st	2nd	3rd
3% Acetic Acid	2h	70°C	mg/dm²	10	4.7	<3.0	<3.0
50% Ethanol	2h	70°C	mg/dm²	10	3.6	<3.0	<3.0

Simulant Used	Time	Temperature	Unit	Limit	Result		
					3		
					1st	2nd	3rd
Oil	2h	70°C	mg/dm²	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 LC-MS/MS.
Simulant Used: Acetic Acid 3%
Test Condition: 2h at 70°C

Test Item(s)	CAS No.	Unit	Limit	MDL	Result		
					1		
					1st	2nd	3rd
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

Specific Migration of Primary Aromatic Amines

Test Request:	Specific migration of primary aromatic amines as specified in French Décret 2007-766 with its amendments and Fiche MCDA n°3 (V03-09/09/2021) Organic materials made of synthetic material.
Test Method:	With reference to EN 13130-1:2004 for sample preparation, analysis was performed by LC-MS/MS.
Simulant Used:	Acetic Acid 3%
Test Condition:	2h at 70°C

Test Item(s)	CAS No.	Unit	Limit	MDL	Result		
					1		
					1st	2nd	3rd
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

Specific Migration of Heavy Metal

Test Request: Specific migration of heavy metal as specified in Commission Regulation (EU) No 10/2011 and its amendments.
Test Method: With reference to Regulation (EU) No 10/2011 and its amendments 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
Test Condition: 2h at 70°C

Test Item(s)	Unit	Limit	MDL	Result		
				1		
				1st	2nd	3rd
Barium (Ba)	mg/kg	1	0.25	ND	ND	ND
Cobalt (Co)	mg/kg	0.05	0.01	ND	ND	ND
Copper (Cu)	mg/kg	5	0.25	ND	ND	ND
Iron (Fe)	mg/kg	48	0.25	ND	ND	ND
Lithium (Li)	mg/kg	0.6	0.5	ND	ND	ND
Manganese (Mn)	mg/kg	0.6	0.05	ND	ND	ND
Zinc (Zn)	mg/kg	5	0.5	ND	ND	ND
Aluminium	mg/kg	1	0.1	ND	ND	ND
Nickel (Ni)	mg/kg	0.02	0.01	ND	ND	ND
Antimony (Sb)	mg/kg	0.04	0.01	ND	ND	ND
Arsenic (As)	mg/kg	ND	0.01	ND	ND	ND
Cadmium (Cd)	mg/kg	ND	0.002	ND	ND	ND
Chromium (Cr)	mg/kg	ND	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 lanthanide substances	mg/kg	0.05	-	ND	ND	ND
Lead (Pb)	mg/kg	ND	0.01	ND	ND	ND
Mercury (Hg)	mg/kg	ND	0.01	ND	ND	ND

Remark:
mg/kg = milligram per kilogram
MDL = method detection limit
ND = Not detected, less than MDL
Test condition & simulant were specified by client

TO BE CONTINUED

TEST RESULT

Specific Migration of Heavy Metal

Test Request:	Specific migration of heavy metal as specified in accordance with French Décret 2007-766 with its amendments and Fiche MCDA n°3 (V03-09/09/2021) Organic materials made of synthetic material.
Test Method:	With reference to Regulation (EU) No 10/2011 and its amendments 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
Test Condition:	2h at 70°C

Test Item(s)	Unit	Limit	MDL	Result		
				1		
				1st	2nd	3rd
Barium (Ba)	mg/kg	1	0.25	ND	ND	ND
Cobalt (Co)	mg/kg	0.05	0.01	ND	ND	ND
Copper (Cu)	mg/kg	5	0.25	ND	ND	ND
Iron (Fe)	mg/kg	48	0.25	ND	ND	ND
Lithium (Li)	mg/kg	0.6	0.5	ND	ND	ND
Manganese (Mn)	mg/kg	0.6	0.05	ND	ND	ND
Zinc (Zn)	mg/kg	5	0.5	ND	ND	ND
Aluminium	mg/kg	1	0.1	ND	ND	ND
Nickel (Ni)	mg/kg	0.02	0.01	ND	ND	ND
Antimony (Sb)	mg/kg	0.04	0.01	ND	ND	ND
Arsenic (As)	mg/kg	ND	0.01	ND	ND	ND
Cadmium (Cd)	mg/kg	ND	0.002	ND	ND	ND
Chromium (Cr)	mg/kg	ND	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 lanthanide substances	mg/kg	0.05	-	ND	ND	ND
Lead (Pb)	mg/kg	ND	0.01	ND	ND	ND
Mercury (Hg)	mg/kg	ND	0.01	ND	ND	ND

Remark:
mg/kg = milligram per kilogram
MDL = method detection limit
ND = Not detected, less than MDL
Test condition & simulant were specified by client

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.		1			Detection limit
Parameter	Unit	Test result			
		Trial I	Trial II	Trial III	
Calcium(Ca)	mg/kg	4	3	2	1
Magnesium(Mg)	mg/kg	0.9	0.7	0.4	0.1
Potassium(K)	mg/kg	N.D.	N.D.	N.D.	0.1
Sodium(Na)	mg/kg	N.D.	N.D.	N.D.	1

Note: - 1 mg/kg = 1 ppm = 0.0001%
- °C = degree Celsius
- N.D. = Not Detected
The test item(s) was/were subcontracted to Eurofins internal lab.

Other Information / Remark:

Food contact area to food simulant (S/V in dm^2/ L): Material No. 1 (6.0:1)

END OF THE REPORT