TEST REPORT

APPLICANT	:	Mid Ocean Hong Kong Ltd.
ADDRESS	:	7/F, Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong.
SAMPLE DESCRIPTION	:	PP mug in double wall
MODEL NO.	:	MO6582，MO6583
SAMPLE RECEIVED DATE	:	07-May-2022
FURTHER INFORMATION DATE	:	01-Jun-2022
TURN AROUND TIME	:	07-May-2022 to 02-Jun-2022
REVISED DATE	:	27-Jun-2022

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

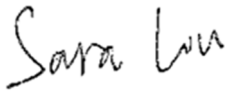
TEST REQUESTED	RESULT
Overall Migration-PP	Pass
Overall Migration-SILICONE	Pass
Specific Migration of Heavy Metal	Pass
Specific Migration of Bisphenol A	Pass
Phthalates Content	Pass
Total Cadmium Content	Pass
Total Lead Content	Pass
Specific Migration of Primary Aromatic Amines	Pass
Specific Migration of Bisphenol A-DGCCRF	Pass
Volatile Organic Matter (VOM)	Pass
Peroxide value	Pass
Specific migration of Organotin (as tin)	Pass

Note: This report cancels and supersedes report number EFHZ22050833-CG-01 issued on Jun 02, 2022. Modification description: per client's request, add sample A for Specific Migration of Primary Aromatic Amines, Specific Migration of Bisphenol A-DGCCRF, Volatile Organic Matter (VOM), Peroxide value and Specific migration of Organotin (as tin) test in the revised report.

Eurofins（Hangzhou）contact information
Customer service: CandyWanyan@eurofins.com/ +86 571 87203730
Sales specialist: JackZhang@eurofins.com/ +86 216 1819 181

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

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



Sara Liu
Lab Manager

SAMPLE PHOTO(S)

A

EFHZ22050833-CG-01+Rev1

TO BE CONTINUED

REFERENCE SAMPLE PHOTO(S)

The reference samples have not been tested in current report, but according to customer´s request, the pictures have also been included. For sample tested in current report, please refer to " sample photo".

TO BE CONTINUED

COMPONENT LIST

Component No.	Component	Sample No.
1	White PP	A
2	Transparent silicone	A

TO BE CONTINUED

TEST RESULT

Overall Migration-PP

Test Requested : To determine the Overall Migration for compliance with Commission Regulation (EU) No 10/2011 and its amendments (EU) No 2020/1245 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;
or EN1186-3:2002 aqueous food simulants by total immersion method;
or EN1186-9:2002 aqueous food simulants by article filling method;
or EN1186-2:2002 olive oil by total immersion method;
or EN1186-8:2002 olive oil by article filling method;
or EN 1186-14:2002 substitute test

Simulant used	Time	Temperature	Max. Permissible Limit	Result		
				1		
				1st Test	2nd Test	3rd Test
3% Acetic Acid (W/V) Aqueous Solution	2hrs	70℃	10 mg/dm^2	<3.0 mg/dm^2	<3.0 mg/dm^2	<3.0 mg/dm^2
10% Ethanol (V/V) Aqueous Solution	2hrs	70℃	10 mg/dm^2	<3.0 mg/dm^2	<3.0 mg/dm^2	<3.0 mg/dm^2
95% Ethanol (V/V) Aqueous Solution (Rectified Olive Oil Substitute)	2hrs	60℃	10 mg/dm^2	<3.0 mg/dm^2	<3.0 mg/dm^2	<3.0 mg/dm^2
Isooctane (Rectified Olive Oil Substitute)	0.5hr	40℃	10 mg/dm^2	<3.0 mg/dm^2	<3.0 mg/dm^2	<3.0 mg/dm^2

Note:

(1) mg/dm^2=milligram per square decimeter
(2) mg/kg = milligram per kilogram
(3) ℃=degree Celsius
(4) <= less than
(5) Analytical tolerance of aqueous simulants is 1 mg/dm^2 or 6mg/kg
(6) Analytical tolerance of fatty food simulants is 3 mg/dm^2 or 20mg/kg
(7) 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 EN 1186-1:2002 for selection of conditions and test methods;
or EN 1186-3:2002 aqueous food simulants by total immersion method;
or EN 1186-9:2002 aqueous food simulants by article filling method;
or EN 1186-2:2002 olive oil by total immersion method;
or EN 1186-8:2002 olive oil by article filling method;
or EN 1186-14:2002 substitute test.

Simulant used	Time	Temperature	Max. Permissible Limit	Result 2		
				1st Test	2nd Test	3rd Test
3% Acetic Acid (W/V) Aqueous Solution	2hrs	70℃	10 mg/dm^2	<3.0 mg/dm^2	<3.0 mg/dm^2	<3.0 mg/dm^2
10% Ethanol (V/V) Aqueous Solution	2hrs	70℃	10 mg/dm^2	<3.0 mg/dm^2	<3.0 mg/dm^2	<3.0 mg/dm^2
95% Ethanol (V/V) Aqueous Solution (Rectified Olive Oil Substitute)	2hrs	60℃	10 mg/dm^2	13.3 mg/dm^2	5.6 mg/dm^2	3.1 mg/dm^2
Isooctane (Rectified Olive Oil Substitute)	0.5hr	40℃	10 mg/dm^2	11.3 mg/dm^2	6.6 mg/dm^2	<3.0 mg/dm^2

Note:

(1) mg/dm^2=milligram per square decimeter
(2) mg/kg = milligram per kilogram
(3) ℃=degree Celsius
(4) <= less than
(5) Analytical tolerance of aqueous simulants is 1 mg/dm^2 or 6mg/kg
(6) Analytical tolerance of fatty food simulants is 3 mg/dm^2 or 20mg/kg
(7) 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 for compliance with Commission Regulation (EU) No. 10/2011 and its amendments (EU) No 2020/1245 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 : 70℃ 2hours

Test Item(s)	Max. Permissible limit	Unit	MDL	Test Result		
				1		
				1st test	2nd test	3rd test
Barium(Ba)	1	mg/kg	0.25	ND	ND	ND
Cobalt(Co)	0.05	mg/kg	0.05	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		
				2		
				1st test	2nd test	3rd test
Barium(Ba)	1	mg/kg	0.25	ND	ND	ND
Cobalt(Co)	0.05	mg/kg	0.05	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 (EU) No 2020/1245.
Test Method: With reference to EN 13130-1:2004 for sample preparation, analysis was performed by LC-MS.
Simulant Used: 3% Acetic Acid (W/V) Aqueous Solution
Test Condition: 70℃ 2hours

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

Tested Item(s)	Unit	Limit	MDL	Result 2		
				1st test	2nd test	3rd 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

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
Dibutyl phthalate (DBP)	84-74-2	%	-	0.005	ND	ND
Benzyl butyl phthalate (BBP)	85-68-7	%	-	0.005	ND	ND
Bis(2-ethylhexyl) phthalate (DEHP)	117-81-7	%	-	0.005	ND	ND
Diisobutyl 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 (DNOP + DINP + DIDP)	-	%	0.1	-	ND	ND

Remarks:
1 mg/kg = 1 ppm = 0.0001%
MDL = method detection limit
ND = Not detected, less than MDL
“- “ = Not Regulated

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
Total Cadmium	mg/kg	100	5	ND	21

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

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 and total lead content was determined by ICP-OES.

Test Item(s)	Unit	Limit	MDL	Result	
				1	2
Total Lead	mg/kg	500	10	ND	ND

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

TO BE CONTINUED

TEST RESULT

Specific Migration of Primary Aromatic Amines

Test Request: In accordance with Commission Regulation (EU) No.10/2011 and its amendments, French Décret 2007-766 with its amendment and French DGCCRF Food contact suitability of Organic materials made of synthetic material - 05/09/2017.
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 (W/V) Aqueous
Solution Test Condition:70°C 2hours

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

TO BE CONTINUED

TEST RESULT

Specific Migration of Bisphenol A

Test Request:	To determine Specific Migration of Bisphenol A in accordance with French Decree No. 2007-766 and its amendment and DGCCRF Food contact suitability of organic materials from synthetic materials – 05/09/2017
Test Method:	With reference to EN 13130-1:2004 for sample preparation, analysis was performed by LC-MS.
Simulant Used:	3% Acetic Acid (W/V) Aqueous Solution
Test Condition:	70ºC 2hours

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

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

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

TO BE CONTINUED

TEST RESULT

Volatile Organic Matter (VOM)

Test Requested : In accordance with French Arrêté du 25 Novembre 1992, and French Décret 2007-766.
For material: Silicon rubber –Volatile Organic Matter (VOM)

Test Method : With reference to French Arrêté du November 1992 Annex III.

Test Item(s)	Maxi. Permissible Limit	Unit	MDL	Result
				2
Volatile organic matter (VOM)	0.5	%	0.1	0.43

Peroxide value

Test Requested : In accordance with French Arrêté du 25 Novembre 1992, and French Décret 2007-766.
For material: Silicon rubber –Peroxide value.

Test Method : With reference to European pharmacopoeia, 9.0 Appendix X F. Peroxide Value method A.

Test Item(s)	Limit	Result
		2
Peroxide Value	Absent	Absent

Specific migration of Organotin (as tin)

Test Requested : In accordance with French Arrêté du 25 Novembre 1992, and French Décret 2007-766.
For material: Silicon rubber –Specific migration of organotin (as Tin).

Test Method : Sample preparation in 3% acetic acid at 70℃ for 2 hours, followed by analysis using ICP-OES.

Test Item(s)	Maxi. Permissible Limit	Unit	MDL	Result		
				2		
				1st test	2nd test	3rd test
Specific migration of Tin in 3% acetic acid	0.1	mg/kg	0.01	ND	ND	ND

Note:
(1) mg/kg = milligram per kilogram of foodstuff in contact with
(2) mg/dm^2 =milligram per square decimeter
(3) mg/kg =milligram per kilogram
(4) ℃=Degree Celsius
(5) < = Less than

END OF THE REPORT