

TEST REPORT

Company Name Mid Ocean Brands B.V
Shown on Report:
Address: 7/F. Kings Tower | 111 King Lam Street | Cheung Sha Wan,
Kowloon | Hong Kong

The following sample(s) was/were submitted and identified on behalf of the client as:

Sample Name: PP Lunch Box with bamboo Lid
Sample Model: MO2459
Vendor code: 111906
Buyer: Mid Ocean Brands B.V
Sample quantity: 4 Pieces
Sample Received Date: Nov.01, 2024
Test Period: Nov.01, 2024 – Dec.04, 2024
Date of Issue: Dec.06, 2024

ISSUED BY:

GUANGDONG TI COBO TESTING CO.,LTD.

Tested by: Lius

Lius

Checked by: Lily

Lily

Approved by: Sam Xie

Sam Xie

Anti-counterfeiting code: 6cj8

1. Test Requested and Test Conclusion:

Based on the performed tests on specified material(s) or submitted sample(s).

Test items	Conclusion
Regulation (EC) No 1907/2006 REACH Annex XVII	
- Total Lead (Pb) Content	PASS
- Total Cadmium(Cd) Content	PASS
- Phthalates content	PASS
- Polycyclic Aromatic Hydrocarbons (PAHs) Content	PASS
REGULATION (EC) No 1935/2004 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on materials and articles intended to come into contact with food.and COMMISSION REGULATION (EU)No.10/2011 on plastic materials and articles intended to come into contact with food.	
- Overall migration	PASS
- Specific migration of Bisphenol A (BPA)	PASS
- Primary aromatic amines	PASS
- Soluble heavy metal	PASS
Framework Resolution ResAP(2004)5 on silicones used for food contact applications.	
- Overall migration	PASS
French 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 (BPA).	
- Bisphenol A (BPA) Content	PASS
Decree of 25 November 1992 on materials and articles made of elastomer silicone placed or intended to be in contact with foodstuffs, products and beverages food.	
- Overall migration	PASS
- Volatile organic matter	PASS
- Peroxide residues	PASS
- Specific migration of Organotin.	PASS
DGCCRF DM/4B/COM/003 Rules relating to organic materials based on synthetic material intended to come into contact with food	
- Overall migration	PASS
- Specific migration of Bisphenol A (BPA)	PASS
- Primary aromatic amines	PASS
- Soluble heavy metal	PASS
German food, Articles of Daily Use and Feed Code (LFGB), section 30&31, and BfR Recommendations.	
- Pentachlorophenol(PCP)	PASS
- Specific migration of Formaldehyde	PASS
BS EN 12875-1:2005 Mechanical dishwashing resistance of utensils - Part 1: Reference test method for domestic articles.	

- Mechanical dishwashing	PASS
Microwavable testing-BS EN 15284:2007	PASS



2. Test Result(s)

2.1 Total Lead(Pb) content - REACH Annex XVII

Test method: Reference to IEC 62321-5:2013, analyzed by Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES).

Material No.	Test Items	CAS No.	Limit(mg/kg)	RL(mg/kg)	Result(mg/kg)
1	Lead (Pb)	7439-92-1	500	10	N.D.
2	Lead (Pb)	7439-92-1	500	10	N.D.
3	Lead (Pb)	7439-92-1	500	10	N.D.

- Note:
1. mg/kg = milligram per kilogram
 2. N.D. = Not Detected (<RL)
 3. RL =Report Limit.

2.2 Total Cadmium (Cd) Content - REACH Annex XVII

Test method: Reference to IEC 62321-5:2013, analyzed by Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES).

Material No.	Test Items	CAS No.	Limit(mg/kg)	RL(mg/kg)	Result(mg/kg)
1	Cadmium (Cd)	7440-43-9	100	10	N.D.
2	Cadmium (Cd)	7440-43-9	100	10	N.D.

- Note:
1. mg/kg = milligram per kilogram
 2. N.D. = Not Detected (<RL)
 3. RL =Report Limit.

2.3 Phthalates content - REACH Annex XVII

Test Method: With reference to CPSC-CH-C1001-09.4, Analyzed by Gas Chromatography-Mass Spectrometer (GC-MS).

Compound name	CAS No.	Limit (mg/kg)	Result(mg/kg)	
			1	2
Di-isononyl phthalate (DINP)	28553-12-0	-	N.D.	N.D.
Di-isodecyl phthalate (DIDP)	26761-40-0	-	N.D.	N.D.
Di-n-octyl phthalate (DNOP)	117-84-0	-	N.D.	N.D.
Sum of DINP+ DIDP+ DNOP	-	1000	N.D.	N.D.
Di-(2-ethylhexyl) phthalate(DEHP)	117-81-7	-	N.D.	N.D.
Dibutyl phthalate (DBP)	84-74-2	-	N.D.	N.D.
Benzylbutyl phthalate (BBP)	85-68-7	-	N.D.	N.D.
Diisobutyl phthalate (DIBP)	84-69-5	-	N.D.	N.D.
Sum of DEHP+ DBP+ BBP+ DIBP	-	1000	N.D.	N.D.
Conclusion	-	-	PASS	PASS

- Note:
1. mg/kg = milligram per kilogram
 2. N.D. = Not Detected (<Report Limit: 50mg/kg)



2.4 Polycyclic Aromatic Hydrocarbons (PAHs) Content - REACH Annex XVII

Test Method: Reference to Afps GS 2019.01 PAK, analysis was performed by Gas Chromatograph-Mass Spectrometer (GC-MS).

Test Substance	CAS No.	Limit (mg/kg)	RL(mg/kg)	Result (mg/kg)	
				1	2
Benzo(a)pyrene(BaP)	50-32-8	--	< 0.1	N.D.	N.D.
Benzo[e]pyren(BeP)	192-97-2	--	< 0.1	N.D.	N.D.
Benz(a)anthracene(BaA)	56-55-3	--	< 0.1	N.D.	N.D.
Chrysene(CHR)	218-01-9	--	< 0.1	N.D.	N.D.
Benzo(b)fluoranthene(BbFA)	205-99-2	--	< 0.1	N.D.	N.D.
Benzo[j]fluoranthene(BjFA)	205-82-3	--	< 0.1	N.D.	N.D.
Benzo(k)fluoranthene(BkFA)	207-08-9	--	< 0.1	N.D.	N.D.
Dibenz(a,h)anthracene(DBAhA)	53-70-3	--	< 0.1	N.D.	N.D.
Sum Of Above 8 PAH		< 1.0	< 0.5	N.D.	N.D.
Conclusion				PASS	PASS

- Note:
1. mg/kg = milligram per kilogram
 2. N.D. = Not Detected (<RL)
 3. RL =Report Limit.



2.5 Overall migration - EU

Test Method: With reference to EN1186-3:2022

Material No.	Test Condition	Limit (mg/dm ²)	Result(mg/dm ²)			Conclusion
			1 st	2 nd	3 rd	
1	3% Acetic acid(w/v), 70°C, 2 hours	10	<3	<3	<3	PASS
	50% Ethanol(v/v), 70°C, 2 hours	10	<3	<3	<3	PASS
	95% Ethanol(v/v), 60°C, 2 hours	10	<3	<3	<3	PASS
	Isooctane, 40°C, 0.5 hours	10	3.4	<3	<3	PASS

Note: mg/dm² = milligram per square decimetre of surface area of material or article.

2.6 Specific migration of Bisphenol A (BPA) - EU

Test Method: With reference to CEN/TS 13130-13:2005, analyzed by Liquid Chromatography- Mass Spectrometry (LC-MS/MS).

Material No.	Test Condition	Limit (mg/kg)	Result(mg/kg)			Conclusion
			1 st	2 nd	3 rd	
1	3% Acetic acid(w/v), 70°C for 2 hours	0.05	<0.01	<0.01	<0.01	PASS
2	3% Acetic acid(w/v), 70°C for 2 hours	0.05	<0.01	<0.01	<0.01	PASS

Note: mg/kg = milligrams of the constituents released per kilogram of foodstuff.



2.7 Primary aromatic amines – EU

Test Method: BS EN 13130-1:2004, analyzed by Ultra-high performance liquid chromatography – tandem mass spectrometry (UPLC-MS/MS).

No.	Substances Name	CAS No.	Limit (mg/kg)	Results (mg/kg)		
				1		
				1 st	2 nd	3 rd
1	biphenyl-4-ylamine/ 4-aminodiphenyl/ xenylamine	92-67-1	0.002	<0.002	<0.002	<0.002
2	benzidine	92-87-5	0.002	<0.002	<0.002	<0.002
3	4-chloro-o-toluidine	95-69-2	0.002	<0.002	<0.002	<0.002
4	2-naphthylamine	91-59-8	0.002	<0.002	<0.002	<0.002
5	o-aminoazotoluene/ 4-o-tolylazo-o-toluidine/ 4-amino-2', 3-dimethylazobenzene	97-56-3	0.002	<0.002	<0.002	<0.002
6	2-amino-4-nitrotoluene/ 5-nitro-o-toluidine	99-55-8	0.002	<0.002	<0.002	<0.002
7	4-chloroaniline	106-47-8	0.002	<0.002	<0.002	<0.002
8	4-methoxy-m-phenylenediamine	615-05-4	0.002	<0.002	<0.002	<0.002
9	4,4'-methylenedianiline/4,4'-diaminodiphenylmethane	101-77-9	0.002	<0.002	<0.002	<0.002
10	3,3'-dichlorobenzidine/ 3,3'-dichlorobiphenyl-4,4'-ylene diamine	91-94-1	0.002	<0.002	<0.002	<0.002
11	3,3'-dimethoxybenzidine/ o-dianisidine	119-90-4	0.002	<0.002	<0.002	<0.002
12	3,3'-dimethylbenzidine/ 4,4'-bi-o-toluidine	119-93-7	0.002	<0.002	<0.002	<0.002
13	4,4'-methylenedi-o-toluidine	838-88-0	0.002	<0.002	<0.002	<0.002
14	6-methoxy-m-toluidine/ p-cresidine	120-71-8	0.002	<0.002	<0.002	<0.002
15	4,4'-methylene-bis-(2-chloroaniline)/ 2,2'-dichloro-4,4'-methylene-dianiline	101-14-4	0.002	<0.002	<0.002	<0.002
16	4,4'-oxydianiline	101-80-4	0.002	<0.002	<0.002	<0.002
17	4,4'-thiodianiline	139-65-1	0.002	<0.002	<0.002	<0.002
18	o-toluidine/ 2-aminotoluene	95-53-4	0.002	<0.002	<0.002	<0.002
19	4-methyl-m-phenylenediamine/ 2,4-toluyldiamine	95-80-7	0.002	<0.002	<0.002	<0.002
20	2,4,5-trimethylaniline	137-17-7	0.002	<0.002	<0.002	<0.002
21	o-anisidine / 2-methoxyaniline	90-04-0	0.002	<0.002	<0.002	<0.002
22	4-aminoazobenzene	60-09-3	0.002	<0.002	<0.002	<0.002

23	m-Phenylenediamine	108-45-2	0.002	<0.002	<0.002	<0.002
24	Aniline	62-53-3	0.01	<0.01	<0.01	<0.01
25	2,4-Dimethylaniline/2,4-xylydine	95-68-1				
26	2,6-Dimethylaniline/2,6-xylydine	87-62-7				
27	m-Phenylenediamine	108-45-2				
28	p-Phenylenediamine/ 1,4-phenylenediamine	106-50-3				
29	2,6-Toluenediamine	823-40-5				
30	1,5-Diaminenaphthalane	2243-62-1				
Conclusion				PASS		

- Note:**
1. Test Condition: 3% Acetic acid(w/v), 70°C for 2 hours
 2. mg/kg = milligrams of the constituents released per kilogram of foodstuff.
 3. The results of the three migration tests should show a decreasing trend, and the results of the third test should be used to determine the compliance.



2.8 Specific Release of Heavy Metals – EU

Test Method: BS EN13130-1:2004, was analyzed by Inductively Coupled Plasma Mass Spectrometer (ICP-MS).

No.	Elements	Limit (mg/kg)	Results (mg/kg)		
			1		
			1 st	2 nd	3 rd
1	Barium (Ba)	1	<0.1	<0.1	<0.1
2	Cobalt (Co)	0.05	<0.05	<0.05	<0.05
3	Copper (Cu)	5	<0.5	<0.5	<0.5
4	Iron (Fe)	48	<1	<1	<1
5	Lithium (Li)	0.6	<0.1	<0.1	<0.1
6	Manganese (Mn)	0.6	<0.05	<0.05	<0.05
7	Zinc (Zn)	5	<1	<1	<1
8	Aluminium (Al)	1	<0.1	<0.1	<0.1
9	Nickel (Ni)	0.02	<0.01	<0.01	<0.01
10	Lead (Pb)	0.01	<0.01	<0.01	<0.01
11	Cadmium (Cd)	0.002	<0.002	<0.002	<0.002
12	Arsenic (As)	0.01	<0.01	<0.01	<0.01
13	Mercury (Hg)	0.01	<0.01	<0.01	<0.01
14	Chromium (Cr)	0.01	<0.01	<0.01	<0.01
15	Antimony (Sb)	0.04	<0.02	<0.02	<0.02
16	Europium (Eu)	0.05	<0.01	<0.01	<0.01
17	Gadolinium (Gd)				
18	Lanthanum (La)				
19	Terbium (Tb)				
20	Calcium (Ca)	--	<0.001	<0.001	<0.001
21	Ammonium (NH ₄ ⁺)	--	<0.001	<0.001	<0.001
22	Magnesium (Mg)	--	<0.001	<0.001	<0.001
23	potassium (K)	--	0.011	0.014	<0.001
24	Sodium (Na)	--	<0.001	<0.001	<0.001
Conclusion			PASS	PASS	PASS

- Note:**
1. Test Condition: 3% Acetic acid(w/v), 70°C for 2 hours
 2. mg/kg = milligrams of the constituents released per kilogram of foodstuff.
 3. The results of the three migration tests should show a decreasing trend, and the results of the third test should be used to determine the compliance.

2.9 Overall migration - AP(2004)5

Test Method: With reference to EN1186-3:2022

Material No.	Test Condition	Limit (mg/dm ²)	Result(mg/dm ²)			Conclusion
			1 st	2 nd	3 rd	
2	3% Acetic acid(w/v), 70°C, 2 hours	10	<3	<3	<3	PASS
	50% Ethanol(v/v), 70°C, 2 hours	10	<3	<3	<3	PASS
	95% Ethanol(v/v), 60°C, 2 hours	10	<3	<3	<3	PASS
	Isooctane, 40°C, 0.5 hours	10	3.7	<3	<3	PASS

Note: mg/dm² = milligram per square decimetre of surface area of material or article.

2.10 Bisphenol A (BPA) Content – DGCCRF

Test Method: Solvent extraction, analyzed by Liquid Chromatography- Mass Spectrometry (LC-MS/MS).

Material No.	Limit(mg/kg)	Result(mg/kg)	Conclusion
1	N.D.	N.D.	PASS
2	N.D.	N.D.	PASS

Note: 1. mg/kg = milligrams per kilogram.
2. N.D. = Not Detected (<Report Limit: 0.01mg/kg)

2.11 Overall migration – DGCCRF

Test Method: With reference to EN1186-3:2022

Material No.	Test Condition	Limit (mg/dm ²)	Result(mg/dm ²)			Conclusion
			1 st	2 nd	3 rd	
1	3% Acetic acid(w/v), 70°C, 2 hours	10	<3	<3	<3	PASS
	50% Ethanol(v/v), 70°C, 2 hours	10	<3	<3	<3	PASS
	95% Ethanol(v/v), 60°C, 2 hours	10	<3	<3	<3	PASS
	Isooctane, 40°C, 0.5 hours	10	3.4	<3	<3	PASS
2	3% Acetic acid(w/v), 70°C, 2 hours	10	<3	<3	<3	PASS
	50% Ethanol(v/v), 70°C, 2 hours	10	<3	<3	<3	PASS
	95% Ethanol(v/v), 60°C, 2 hours	10	<3	<3	<3	PASS
	Isooctane, 40°C, 0.5 hours	10	3.7	<3	<3	PASS

Note: mg/dm² = milligram per square decimetre of surface area of material or article.

2.12 Volatile organic matter (VOM) - DGCCRF

Test Method: With reference to French Arrêté du 25 November 1992, ANNEX III

Material No.	Test Condition	Limit(%)	Result(%)	Conclusion
2	200°C, 4 hours	0.5	0.35	PASS

Note: % = Percentage by weight..

2.13 Peroxide value - DGCCRF

Test Method: With reference to French pharmacopoeia, Xth edition.

Material No.	Limit(mg/kg)	Result(mg/kg)	Conclusion
2	Absent	Absent	PASS

2.14 Specific migration of Organotin - DGCCRF

Test Method: With reference to French Arrêté du 25 November 1992, ANNEX III

Material No.	Limit(mg/kg)	Result(mg/kg)	Conclusion
2	0.1	<0.1	PASS

- Note:**
1. mg/kg = milligrams per kilogram
 2. The result express as Tin.

2.15 Specific migration of Bisphenol A (BPA) – DGCCRF

Test Method: With reference to CEN/TS 13130-13:2005, analyzed by Liquid Chromatography- Mass Spectrometry (LC-MS/MS).

Material No.	Test Condition	Limit (mg/kg)	Result(mg/kg)			Conclusion
			1 st	2 nd	3 rd	
1	3% Acetic acid(w/v), 70°C for 2 hours	0.05	<0.01	<0.01	<0.01	PASS

Note: mg/kg = milligrams of the constituents released per kilogram of foodstuff.



2.16 Soluble heavy metal – DGCCRF

Test Method: BS EN13130-1:2004, was analyzed by Inductively Coupled Plasma Mass Spectrometer (ICP-MS).

No.	Elements	Limit (mg/kg)	Results (mg/kg)		
			1		
			1 st	2 nd	3 rd
1	Barium (Ba)	1	<0.1	<0.1	<0.1
2	Cobalt (Co)	0.05	<0.05	<0.05	<0.05
3	Copper (Cu)	5	<0.5	<0.5	<0.5
4	Iron (Fe)	48	<1	<1	<1
5	Lithium (Li)	0.6	<0.1	<0.1	<0.1
6	Manganese (Mn)	0.6	<0.05	<0.05	<0.05
7	Zinc (Zn)	5	<1	<1	<1
8	Aluminium (Al)	1	<0.1	<0.1	<0.1
9	Nickel (Ni)	0.02	<0.01	<0.01	<0.01
10	Lead (Pb)	0.01	<0.01	<0.01	<0.01
11	Cadmium (Cd)	0.002	<0.002	<0.002	<0.002
12	Arsenic (As)	0.01	<0.01	<0.01	<0.01
13	Mercury (Hg)	0.01	<0.01	<0.01	<0.01
14	Chromium (Cr)	0.01	<0.01	<0.01	<0.01
15	Antimony (Sb)	0.04	<0.02	<0.02	<0.02
16	Europium (Eu)	0.05	<0.01	<0.01	<0.01
17	Gadolinium (Gd)				
18	Lanthanum (La)				
19	Terbium (Tb)				
20	Calcium (Ca)	--	<0.001	<0.001	<0.001
21	Ammonium (NH ₄ ⁺)	--	<0.001	<0.001	<0.001
22	Magnesium (Mg)	--	<0.001	<0.001	<0.001
23	potassium (K)	--	0.011	0.014	<0.001
24	Sodium (Na)	--	<0.001	<0.001	<0.001
Conclusion			PASS	PASS	PASS

- Note:**
1. Test Condition: 3% Acetic acid(w/v), 70°C for 2 hours
 2. mg/kg = milligrams of the constituents released per kilogram of foodstuff.
 3. The results of the three migration tests should show a decreasing trend, and the results of the third test should be used to determine the compliance.

2.17 Primary aromatic amines – DGCCRF

Test Method: BS EN 13130-1:2004, analyzed by Ultra-high performance liquid chromatography – tandem mass spectrometry (UPLC-MS/MS).

No.	Substances Name	CAS No.	Limit (mg/kg)	Results (mg/kg)		
				1		
				1 st	2 nd	3 rd
1	biphenyl-4-ylamine/ 4-aminodiphenyl/ xenylamine	92-67-1	0.002	<0.002	<0.002	<0.002
2	benzidine	92-87-5	0.002	<0.002	<0.002	<0.002
3	4-chloro-o-toluidine	95-69-2	0.002	<0.002	<0.002	<0.002
4	2-naphthylamine	91-59-8	0.002	<0.002	<0.002	<0.002
5	o-aminoazotoluene/ 4-o-tolylazo-o-toluidine/ 4-amino-2', 3-dimethylazobenzene	97-56-3	0.002	<0.002	<0.002	<0.002
6	2-amino-4-nitrotoluene/ 5-nitro-o-toluidine	99-55-8	0.002	<0.002	<0.002	<0.002
7	4-chloroaniline	106-47-8	0.002	<0.002	<0.002	<0.002
8	4-methoxy-m-phenylenediamine	615-05-4	0.002	<0.002	<0.002	<0.002
9	4,4'-methylenedianiline/4,4'-diaminodiphenylmethane	101-77-9	0.002	<0.002	<0.002	<0.002
10	3,3'-dichlorobenzidine/ 3,3'-dichlorobiphenyl-4,4'-ylene diamine	91-94-1	0.002	<0.002	<0.002	<0.002
11	3,3'-dimethoxybenzidine/ o-dianisidine	119-90-4	0.002	<0.002	<0.002	<0.002
12	3,3'-dimethylbenzidine/ 4,4'-bi-o-toluidine	119-93-7	0.002	<0.002	<0.002	<0.002
13	4,4'-methylenedi-o-toluidine	838-88-0	0.002	<0.002	<0.002	<0.002
14	6-methoxy-m-toluidine/ p-cresidine	120-71-8	0.002	<0.002	<0.002	<0.002
15	4,4'-methylene-bis-(2-chloroaniline)/ 2,2'-dichloro-4,4'-methylene-dianiline	101-14-4	0.002	<0.002	<0.002	<0.002
16	4,4'-oxydianiline	101-80-4	0.002	<0.002	<0.002	<0.002
17	4,4'-thiodianiline	139-65-1	0.002	<0.002	<0.002	<0.002
18	o-toluidine/ 2-aminotoluene	95-53-4	0.002	<0.002	<0.002	<0.002
19	4-methyl-m-phenylenediamine/ 2,4-toluyldiamine	95-80-7	0.002	<0.002	<0.002	<0.002
20	2,4,5-trimethylaniline	137-17-7	0.002	<0.002	<0.002	<0.002
21	o-anisidine / 2-methoxyaniline	90-04-0	0.002	<0.002	<0.002	<0.002
22	4-aminoazobenzene	60-09-3	0.002	<0.002	<0.002	<0.002

23	m-Phenylenediamine	108-45-2	0.002	<0.002	<0.002	<0.002
24	Aniline	62-53-3	0.01	<0.01	<0.01	<0.01
25	2,4-Dimethylaniline/2,4-xylidine	95-68-1				
26	2,6-Dimethylaniline/2,6-xylidine	87-62-7				
27	m-Phenylenediamine	108-45-2				
28	p-Phenylenediamine/ 1,4-phenylenediamine	106-50-3				
29	2,6-Toluenediamine	823-40-5				
30	1,5-Diaminenaphthalane	2243-62-1				
Conclusion				PASS		

- Note:**
1. Test Condition: 3% Acetic acid(w/v), 70°C for 2 hours
 2. mg/kg = milligrams of the constituents released per kilogram of foodstuff.
 3. The results of the three migration tests should show a decreasing trend, and the results of the third test should be used to determine the compliance.

2.18 Pentachlorophenol(PCP)

Method: With reference to EN ISO 15320:2011, analyzed by Gas Chromatograph-Mass Spectrometry (GC-MS).

Material No.	Limit (mg/kg)	Result (mg/kg)	Conclusion
3	0.15	<0.1	PASS

Note: mg/kg = milligram per kilogram.

2.19 Specific migration of Formaldehyde

Test Method: With reference to CEN/TS 13130-23:2005, analyzed by Ultraviolet visible Spectroscopy (UV-Vis).

Material No.	Test Condition	Limit(mg/kg)	Result(mg/kg)			Conclusion
			1 st	2 nd	3 rd	
3	Distilled water, 80°C, 2hours	15	<1	<1	<1	PASS

Note: mg/kg = milligrams of the constituents released per kilogram of foodstuff.

2.20 Mechanical dishwashing

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

1. Visually inspect samples and record any cosmetic defects.
2. Load the dishwasher with tested samples. The other sample will be used as the stand.
3. Fill the dishwasher soap holder with the powder detergent, close and lock the dishwasher as recommended in the operating instructions.
4. Run the dishwasher for 10 cycles with 149°F(65°C) water at “normal setting”for housewares. Each cycle includes soaking, washing and drying.
5. Remove and visually examine each sample.

Test Requirement: The sample shall show no signs of discoloration or cracking after testing.

Sample size:1 pieces

Test result details show as following table:

Sample No.	Washing cycle									
	1 st	2 nd	3 rd	4 th	5 th	6 th	7 th	8 th	9 th	10 th
4	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS	PASS



Before test



After test

2.21 Microwavable testing

Test Method: BS EN 15284:2007 Materials and articles in contact with food stuffs Test method for the resistance to microwave heating of ceramic, glass, glass-ceramic or plastics cookware

Number of Tested Samples: 1 Piece

Number of Control Sample: 1 Piece

Test Procedure:

1. Apply a stain to the surface of the test specimen and wash clear.
2. Visually check that the surface is not damaged. Note any small faults prior to testing.
3. Except for articles made from glass or glass-ceramic, immerse the test specimen in water at a temperature of $(20\pm3)^{\circ}\text{C}$ for one hour and then wipe the surface dry with a cloth.
4. Pour (125 ± 2.5) ml of water into each water container and place at the back of the oven so as not to interfere with the turntable.
5. Place the test specimen at the center of the oven on the turntable and microwave for the time determined in 5.2 to apply the specified energy for the short period. If electrical arcing begins IMMEDIATELY SWITCH OFF THE OVEN. Terminate the test and state in the test report that at the onset of electrical arcing the test was terminated.
6. After the cycle is completed, open the oven door and, of applicable, using the surface temperature measuring apparatus, find and record the highest temperature of the handle. When additional data is required, follow this procedure to find the highest surface temperature. Ensure that this process takes no longer than 45s.
7. Immediately following 6, set the oven for the long period determined in 5.2 and restart.
8. After completion, when additional data is required, record the highest surface temperature(in no more than 45s). Remove the test specimen from the oven and allow it to cool on an insulated surface to prevent thermal shock.
9. Apply stain to the test specimen and wash clear(as in 1).
10. Visually inspect the test specimen for damage according to the criteria in Table 1. For the colour criterion, an inspector and inspection site that meet the requirements of Clause 4 and 5.2 of EN12875-2:2001 are required.
11. Repeat the test using the different article shapes in the set.

Test Requirement:

1. No any damage occurs according to the criteria in 10, the inspection criteria in the following table

Table 1 — Inspection criteria

Material	Cracking	Crazing	Scaling	Colour	Melting	Deformation	Suitability for re-use	Charring
Ceramic	+	+ ^a	+ ^b	+ ^c				
Glass, glass-ceramic	+		+ ^b	+ ^c				
Plastics	+			+ ^c	+ ^d	+	+ ^e	+
(+) = to be inspected ^a refers to the glaze ^b refers to on-glaze decoration ^c if several colours are present on one article to be inspected, the colour with the greatest change shall be chosen ^d article shall not be too soft to handle ^e article shall be washable and stain resistant								

2. The maximum surface temperature of handles after the short period heating shall not exceed the following limit values.

Ceramic, Glass < ceramic of Glass: 56°C

Plastic: 60°C

3. The microwave power output calculation:

$$P = 4.187 \cdot \Delta T (M_w + 0.55 M_c) / t$$

P is the microwave power output in watts

ΔT is the difference between the initial and final water temperature

M_w is the mass of water in grams

M_c is the mass of the container in grams

t is the time in seconds

Now:

$$\Delta T = 10^\circ\text{C}; M_w = 10001\text{g}; M_c = 285\text{g}; t = 75\text{s}; P = 4.187 \cdot 10 \cdot (1001 + 0.55 \cdot 285) / 75 = 650\text{W}$$

$$\text{Short time} = 72000 / 646 = 110\text{s} \quad \text{long time} = 468000 / 646 = 720\text{s}$$

Test Result:

1. Observation parameter(s)

Observation parameter(s)	Observation - Plastics
	4
Cracking	No
Colour	No
Melting	No
Deformation	No
Suitability for reuse	No
Charring	No

2. Surface temperature

Sample No.	Maximum surface temperature after short period heating (°C)
	Plastics
4	35.4

Sample No.	Maximum surface temperature after short period heating (°C)
	Plastics
4	90.7



Before test



After test



3. Sample description

Material No.	Description
1	Navy plastic(lunch box)
2	Transparent silicone(seal ring)
3	Brown bamboo(lid)
4	Lunch box(Navy)

Photo of Sample

Statement

1. The laboratory guarantees the scientificity, accuracy and impartiality of the test, and is responsible for all the information in the report, except the information provided by the customer. The customer is responsible for the impact of the information provided on the validity of the results.
2. The report without China inspection body and laboratory Mandatory Approval (CMA) mark has no effect of proving to the society.
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End of Report

