



TEST REPORT

Reference No. : WTF21F12138814A1F
Applicant : Mid Ocean Brands B.V.
Address : 7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan, Kowloon, Hong Kong
Manufacturer : 117486
Sample Name : Aluminum bottle
Model No. : MO6490, MO6491, MO6557
Test Requested : 1. In accordance with German Food, Articles of Daily Use and Feed Code of September 1, 2005(LFGB) Section 30 & 31, Council of Europe Resolution CM/Res(2013)9, EN 601: 2004, BfR recommendation and Regulation (EC) No 1935/2004.
2. In accordance with French Décret n°2007-766 with amendments and Regulation (EC) No 1935/2004.
Test Conclusion : **Pass** (Please refer to next pages for details)
Date of Receipt sample : 2021-12-13 & 2021-01-04
Date of Test : 2021-12-13 to 2022-01-07
Date of Issue : 2022-01-08
Test Result : Please refer to next page (s)
Note : Selected test(s) as requested by applicant

Remarks:

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Prepared By:

Waltek Testing Group (Foshan) Co., Ltd.

Address: No.13-19, 2/F., 2nd Building, Sunlink International Machinery City,
Chencun, Shunde District, Foshan, Guangdong, China

Tel:+86-757-23811398 Fax:+86-757-23811381 E-mail:info@waltek.com.cn

Compiled by:

Approved by:

Abby.Zhou

Abby.Zhou / Project Engineer

Dino Zhang

Dino.Zhang / Technical Manager

**Test Results:****1. Council of Europe Resolution CM/Res(2013)9-Specific Migration of Heavy Metal**

Test Items	1st+2nd Migration (mg/kg)		LOQ (mg/kg)	Limit (mg/kg)
	No.1	No.2		
Aluminium (Al)	ND	0.3	0.2	35
Antimony (Sb)	ND	ND	0.02	0.28
Chromium (Cr)	ND	ND	0.04	1.75
Cobalt (Co)	ND	ND	0.02	0.14
Copper (Cu)	ND	ND	0.2	28
Iron (Fe)	ND	ND	0.4	280
Manganese (Mn)	ND	ND	0.2	12.6
Molybdenum (Mo)	ND	ND	0.02	0.84
Nickel (Ni)	ND	ND	0.02	0.98
Silver (Ag)	ND	ND	0.02	0.56
Tin (Sn)	ND	ND	0.2	700
Vanadium (V)	ND	ND	0.01	0.07
Zinc (Zn)	ND	ND	0.2	35
Arsenic (As)	ND	ND	0.002	0.014
Barium (Ba)	ND	ND	0.2	8.4
Beryllium (Be)	ND	ND	0.01	0.07
Cadmium (Cd)	ND	ND	0.002	0.035
Lead (Pb)	ND	ND	0.01	0.07
Lithium (Li)	ND	ND	0.01	0.336
Mercury (Hg)	ND	ND	0.002	0.021
Thallium (Tl)	ND	ND	0.0002	0.0007
Magnesium (Mg)	ND	0.3	0.2	--
Titanium (Ti)	ND	ND	0.02	--



Test Items	3rd Migration (mg/kg)		LOQ (mg/kg)	Limit (mg/kg)
	No.1	No.2		
Aluminium (Al)	ND	ND	0.1	5
Antimony (Sb)	ND	ND	0.01	0.04
Chromium (Cr)	ND	ND	0.02	0.25
Cobalt (Co)	ND	ND	0.01	0.02
Copper (Cu)	ND	ND	0.1	4
Iron (Fe)	ND	ND	0.2	40
Manganese (Mn)	ND	ND	0.1	1.8
Molybdenum (Mo)	ND	ND	0.01	0.12
Nickel (Ni)	ND	ND	0.01	0.14
Silver (Ag)	ND	ND	0.01	0.08
Tin (Sn)	ND	ND	0.1	100
Vanadium (V)	ND	ND	0.005	0.01
Zinc (Zn)	ND	ND	0.1	5
Arsenic (As)	ND	ND	0.001	0.002
Barium (Ba)	ND	ND	0.1	1.2
Beryllium (Be)	ND	ND	0.005	0.01
Cadmium (Cd)	ND	ND	0.001	0.005
Lead (Pb)	ND	ND	0.005	0.01
Lithium (Li)	ND	ND	0.005	0.048
Mercury (Hg)	ND	ND	0.001	0.003
Thallium (Tl)	ND	ND	0.0001	0.0001
Magnesium (Mg)	ND	ND	0.1	--
Titanium (Ti)	ND	ND	0.01	--

Note:

1. Test Method: With reference to BS EN 13130-1:2004, analysis was performed by ICP-MS.
2. Test Condition and simulant: Sample(s) were migrated with artificial tap water at 70°C for 2 hours.
3. "mg/kg" = milligram per kilogram of foodstuff in contact with
4. LOQ = Limit of quantitation
5. ND = Not Detected or lower than limit of quantitation
6. "--" = Not regulated
7. The specification was quoted from Technical Guide on Metals and alloys used in food contact materials of Council of Europe Resolution CM/Res(2013)9.

**2. Composition Analysis for Aluminium Alloy**

Test Items	Result (%)		LOQ (%)	Limit (%)
	No.1	No.2		
Silicon (Si) [#]	0.05	0.55	0.01	13.5
Antimony (Sb)	ND	ND	0.01	0.05
Tin (Sn)	ND	ND	0.01	0.1
Magnesium (Mg)	0.86	ND	0.01	5.0
Chromium (Cr)	0.04	ND	0.01	0.35
Manganese (Mn)	0.03	ND	0.01	4.0
Titanium (Ti)	0.02	0.03	0.01	0.3
Nickel (Ni)	0.01	ND	0.01	3.0
Zirconium (Zr)	ND	ND	0.01	0.05
Iron (Fe)	0.44	0.13	0.01	2.0
Zinc (Zn)	0.09	ND	0.01	0.25
Copper (Cu)	0.09	ND	0.01	0.6
Strontium (Sr)	ND	ND	0.01	0.05
Arsenic (As)	ND	ND	0.01	Each ≤ 0.05 and Total ≤ 0.15
Tantalum (Ta)	ND	ND	0.01	
Beryllium (Be)	ND	ND	0.01	
Thallium (Tl)	ND	ND	0.01	
Lead (Pb)	ND	ND	0.01	

Note:

1. Test method: With reference to EN 14242: 2004, ISO 808:1973 and ISO 797:1973.
2. “%” = percentage by weight
3. LOQ = Limit of quantitation
4. ND = Not Detected or lower than limit of quantitation
5. The specification was quoted from EN 601: 2004.
6. The testing item marked with [#] is subcontracted items.

**3. Overall Migration Test**

Food Simulant	Test Condition	Result (mg/kg)	LOQ(mg/kg)	Limit (mg/kg)
		No.3		
3% Acetic Acid	70°C for 2 hours	ND	20	60
10% Ethanol	70°C for 2 hours	ND	20	60

Note:

1. Test method: With reference to EN 1186-1: 2002 and EN 1186-3: 2002
2. "mg/kg" = milligram per kilogram of foodstuff in contact with
3. "°C" = Celsius degree
4. LOQ = Limit of quantitation
5. ND = Not Detected or lower than limit of quantitation
6. The specification was quoted from Council of Europe Resolution AP(2004)5 and French Arrêté du 25 novembre 1992 for Silicone Elastomers.

Food Simulant	Test Condition	Result (mg/dm ²)	LOQ (mg/dm ²)	Limit (mg/dm ²)
		No.4		
		1 st Migration		
3% Acetic Acid	70°C for 2 hours	ND	3	--
10% Ethanol	70°C for 2 hours	ND	3	--

Food Simulant	Test Condition	Result (mg/dm ²)	LOQ (mg/dm ²)	Limit (mg/dm ²)
		No.4		
		2 nd Migration		
3% Acetic Acid	70°C for 2 hours	ND	3	--
10% Ethanol	70°C for 2 hours	ND	3	--



Food Simulant	Test Condition	Result (mg/dm ²)	LOQ (mg/dm ²)	Limit (mg/dm ²)
		No.4		
		3 rd Migration		
3% Acetic Acid	70°C for 2 hours	ND	3	10
10% Ethanol	70°C for 2 hours	ND	3	10

Note:

1. Test method: With reference to BS EN 1186-1: 2002 and BS EN 1186-3: 2002
2. "mg/dm²" = milligram per square decimetre
3. "°C" = Celsius degree
4. LOQ = Limit of quantitation
5. ND = Not Detected or lower than limit of quantitation

4. Peroxide Value Test

Test Item	Result	Limit
	No.3	
Peroxide Value	Absent	Absent

Note:

1. Test method: With reference to European Pharmacopeia (2005) ANNEX X F, Clause 2.5.5, method A.
2. The specification was quoted from French Arrêté du 25 novembre 1992 for Silicone Elastomers.

5. Specific Migration of Organotin (as Tin)

Test Item	Result (mg/kg)	LOQ (mg/kg)	Limit (mg/kg)
	No.3		
Specific Migration of Organotin (as Tin)	ND	0.01	0.1

Note:

1. Test Method: With reference to BS EN 13130-1: 2004, sample preparation in 3% acetic acid at 70°C for 2 hours, analysis was performed by ICP-MS.
2. "mg/kg" = milligram per kilogram
3. LOQ = Limit of quantitation
4. ND = Not Detected, less than LOQ
5. The specification was quoted from French Arrêté du 25 novembre 1992 for Silicone Elastomers.

**6. Bisphenol A Content**

Test Item	Result (mg/kg)		LOQ (mg/kg)	Limit (mg/kg)
	No.3	No.4		
Bisphenol A	ND	ND	0.1	Not Detected

Note:

1. Test Method: With reference to EPA3550C:2007, analysis was performed by GC-MS.
2. "mg/kg" = milligram per kilogram
3. LOQ = Limit of quantitation
4. ND = Not Detected or lower than limit of quantitation
5. The specification was quoted from Law No 2012-1442.

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**7. Specific Migration of heavy metal**

Test Items	Result(mg/kg)	LOQ (mg/kg)	Limit (mg/kg)
	1 st Migration		
	No.4		
Specific migration of Nickel	ND	0.01	--
Specific migration of Aluminium	ND	0.1	--
Specific migration of Barium	ND	0.1	--
Specific migration of Cobalt	ND	0.01	--
Specific migration of Copper	ND	0.1	--
Specific migration of Iron	ND	0.1	--
Specific migration of Lithium	ND	0.01	--
Specific migration of Manganese	ND	0.01	--
Specific migration of Zinc	ND	0.1	--
Specific migration of Antimony	ND	0.01	--
Specific migration of Arsenic	ND	0.01	Not detected
Specific migration of Cadmium	ND	0.002	Not detected
Specific migration of Chromium	ND	0.01	Not detected
Specific migration of Mercury	ND	0.01	Not detected
Specific migration of Lead	ND	0.01	Not detected
Specific migration of Europium	ND	0.02	--
Specific migration of Gadolinium	ND	0.02	
Specific migration of Lanthanum	ND	0.02	
Specific migration of Terbium	ND	0.02	



Test Items	Result(mg/kg)	LOQ (mg/kg)	Limit (mg/kg)
	2 nd Migration		
	No.4		
Specific migration of Nickel	ND	0.01	--
Specific migration of Aluminium	ND	0.1	--
Specific migration of Barium	ND	0.1	--
Specific migration of Cobalt	ND	0.01	--
Specific migration of Copper	ND	0.1	--
Specific migration of Iron	ND	0.1	--
Specific migration of Lithium	ND	0.01	--
Specific migration of Manganese	ND	0.01	--
Specific migration of Zinc	ND	0.1	--
Specific migration of Antimony	ND	0.01	--
Specific migration of Arsenic	ND	0.01	Not detected
Specific migration of Cadmium	ND	0.002	Not detected
Specific migration of Chromium	ND	0.01	Not detected
Specific migration of Mercury	ND	0.01	Not detected
Specific migration of Lead	ND	0.01	Not detected
Specific migration of Europium	ND	0.02	--
Specific migration of Gadolinium	ND	0.02	
Specific migration of Lanthanum	ND	0.02	
Specific migration of Terbium	ND	0.02	



Test Items	Result(mg/kg)	LOQ (mg/kg)	Limit (mg/kg)
	3 rd Migration		
	No.4		
Specific migration of Nickel	ND	0.01	0.02
Specific migration of Aluminium	ND	0.1	1
Specific migration of Barium	ND	0.1	1
Specific migration of Cobalt	ND	0.01	0.05
Specific migration of Copper	ND	0.1	5
Specific migration of Iron	ND	0.1	48
Specific migration of Lithium	ND	0.01	0.6
Specific migration of Manganese	ND	0.01	0.6
Specific migration of Zinc	ND	0.1	5
Specific migration of Antimony	ND	0.01	0.04
Specific migration of Arsenic	ND	0.01	Not detected
Specific migration of Cadmium	ND	0.002	Not detected
Specific migration of Chromium	ND	0.01	Not detected
Specific migration of Mercury	ND	0.01	Not detected
Specific migration of Lead	ND	0.01	Not detected
Specific migration of Europium	ND	0.02	Sum<0.05
Specific migration of Gadolinium	ND	0.02	
Specific migration of Lanthanum	ND	0.02	
Specific migration of Terbium	ND	0.02	

Note:

1. Test Method: With reference to BS EN 13130-1: 2004, sample preparation in 3% acetic acid at 70°C for 2 hours, analysis was performed by ICP-MS.
2. "mg/kg" = milligram per kilogram of foodstuff in contact with
3. LOQ = Limit of quantitation
4. ND = Not Detected or lower than limit of quantitation
5. The specification was quoted from (EU) No 10/2011 and its amendments (EU) 2016/1416, (EU) 2017/752 and (EU) 2020/1245.

**8. Specific Migration of Primary Aromatic Amines**

Test Item	Result (mg/kg)	LOQ (mg/kg)	Limit (mg/kg)
	No.4		
Migration of Primary aromatic amines	ND	0.002	<0.01mg/kg

Note:

1. Test Method: With reference to § 64 LFGB L No. 00.00-6, analysis was performed by UV-visible Spectrometer.
2. Test Condition and simulant: 3% acetic acid at 70°C for 2 hours.
3. "mg/kg" = milligram per kilogram of foodstuff in contact with
4. LOQ = Limit of quantitation
5. ND = Not Detected or lower than limit of quantitation
6. The specification was quoted from (EU) No 10/2011 and its amendments (EU) 2016/1416, (EU) 2017/752 and (EU) 2020/1245.

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**9. Specific Migration of Primary Aromatic Amines (single substance)**

Test Items	CAS No.	Result(mg/kg)		LOQ (mg/kg)	Limit (mg/kg)
		1 st Migration			
		No.4			
2-methoxyaniline	90-04-0	ND		0.002	--
4,4'-Diaminobiphenyl	92-87-5	ND		0.002	--
4,4'-Methylen-bis-(2-chloroaniline)	101-14-4	ND		0.002	--
4,4'-Diaminodiphenylmethane	101-77-9	ND		0.002	--
4,4'-Oxydianiline	101-80-4	ND		0.002	--
4-chloroaniline	106-47-8	ND		0.002	--
3,3'-Dimethoxybenzidine	119-90-4	ND		0.002	--
3,3'-Dimethylbenzidine	119-93-7	ND		0.002	--
2-Methoxy-5-methylaniline	120-71-8	ND		0.002	--
2,4,5 – Trimethylaniline	137-17-7	ND		0.002	--
4,4'-Thiodianiline	139-65-1	ND		0.002	--
4-aminoazobenzene	60-09-3	ND		0.002	--
2,4-diaminoanisol	615-05-4	ND		0.002	--
4,4'-diamino-3,3'-dimethyldiphenylmethane	838-88-0	ND		0.002	--
2-Naphthylamine	91-59-8	ND		0.002	--
3,3'-Dichlorobenzidine	91-94-1	ND		0.002	--
4-Aminobiphenyl	92-67-1	ND		0.002	--
2-methylaniline	95-53-4	ND		0.002	--
4-chloro-o-Toluidine	95-69-2	ND		0.002	--
2,4-Toluylendiamine	95-80-7	ND		0.002	--
2,4-Aminoazotoluene	97-56-3	ND		0.002	--
2-Amino-4-nitrotoluene	99-55-8	ND		0.002	--
2,4-Xylidin	95-68-1	ND		0.002	--
2,6-Xylidin	87-62-7	ND		0.002	--
1, 3 - phenylene diamine	108-45-2	ND		0.002	--



Test Items	CAS No.	Result(mg/kg)	LOQ (mg/kg)	Limit (mg/kg)
		2 nd Migration		
		No.4		
2-methoxyaniline	90-04-0	ND	0.002	--
4,4'-Diaminobiphenyl	92-87-5	ND	0.002	--
4,4'-Methylen-bis-(2-chloroaniline)	101-14-4	ND	0.002	--
4,4'-Diaminodiphenylmethane	101-77-9	ND	0.002	--
4,4'-Oxydianiline	101-80-4	ND	0.002	--
4-chloroaniline	106-47-8	ND	0.002	--
3,3'-Dimethoxybenzidine	119-90-4	ND	0.002	--
3,3'-Dimethylbenzidine	119-93-7	ND	0.002	--
2-Methoxy-5-methylaniline	120-71-8	ND	0.002	--
2,4,5 – Trimethylaniline	137-17-7	ND	0.002	--
4,4'-Thiodianiline	139-65-1	ND	0.002	--
4-aminoazobenzene	60-09-3	ND	0.002	--
2,4-diaminoanisol	615-05-4	ND	0.002	--
4,4'-diamino-3,3'- dimethyldiphenylmethane	838-88-0	ND	0.002	--
2-Naphthylamine	91-59-8	ND	0.002	--
3,3'-Dichlorobenzidine	91-94-1	ND	0.002	--
4-Aminobiphenyl	92-67-1	ND	0.002	--
2-methylaniline	95-53-4	ND	0.002	--
4-chloro-o-Toluidine	95-69-2	ND	0.002	--
2,4-Toluylendiamine	95-80-7	ND	0.002	--
2,4-Aminoazotoluene	97-56-3	ND	0.002	--
2-Amino-4-nitrotoluene	99-55-8	ND	0.002	--
2,4-Xylidin	95-68-1	ND	0.002	--
2,6-Xylidin	87-62-7	ND	0.002	--
1, 3 - phenylene diamine	108-45-2	ND	0.002	--



Test Items	CAS No.	Result(mg/kg)	LOQ (mg/kg)	Limit (mg/kg)
		3 rd Migration		
		No.4		
2-methoxyaniline	90-04-0	ND	0.002	ND
4,4'-Diaminobiphenyl	92-87-5	ND	0.002	ND
4,4'-Methylen-bis-(2-chloroaniline)	101-14-4	ND	0.002	ND
4,4'-Diaminodiphenylmethane	101-77-9	ND	0.002	ND
4,4'-Oxydianiline	101-80-4	ND	0.002	ND
4-chloroaniline	106-47-8	ND	0.002	ND
3,3'-Dimethoxybenzidine	119-90-4	ND	0.002	ND
3,3'-Dimethylbenzidine	119-93-7	ND	0.002	ND
2-Methoxy-5-methylaniline	120-71-8	ND	0.002	ND
2,4,5 – Trimethylaniline	137-17-7	ND	0.002	ND
4,4'-Thiodianiline	139-65-1	ND	0.002	ND
4-aminoazobenzene	60-09-3	ND	0.002	ND
2,4-diaminoanisol	615-05-4	ND	0.002	ND
4,4'-diamino-3,3'-dimethyldiphenylmethane	838-88-0	ND	0.002	ND
2-Naphthylamine	91-59-8	ND	0.002	ND
3,3'-Dichlorobenzidine	91-94-1	ND	0.002	ND
4-Aminobiphenyl	92-67-1	ND	0.002	ND
2-methylaniline	95-53-4	ND	0.002	ND
4-chloro-o-Toluidine	95-69-2	ND	0.002	ND
2,4-Toluylendiamine	95-80-7	ND	0.002	ND
2,4-Aminoazotoluene	97-56-3	ND	0.002	ND
2-Amino-4-nitrotoluene	99-55-8	ND	0.002	ND
2,4-Xylidin	95-68-1	ND	0.002	ND
2,6-Xylidin	87-62-7	ND	0.002	ND
1, 3 - phenylene diamine	108-45-2	ND	0.002	ND

**Note:**

1. Test Method: With reference to EN 13130-1:2004, analysis was performed by LC-MS-MS.
2. Test Condition and simulant: 3% acetic acid at 70°C for 2 hours.
3. "mg/kg" = milligram per kilogram of foodstuff in contact with
4. LOQ = Limit of quantitation
5. ND = Not Detected or lower than limit of quantitation
6. The specification was quoted from (EU) No 10/2011 and its amendments (EU) 2016/1416, (EU) 2017/752 and (EU) 2020/1245.

10. Volatile Organic Compounds

Test Item	Result (%)	LOQ (%)	Limit (%)
	No.5		
Volatile Organic compounds	0.07	0.05	0.5

Note:

1. Test method: With reference to French Arrêté du 25 novembre 1992 Annex III for silicone Elastomers.
2. "%" = percentage by weight
3. LOQ = Limit of quantitation
4. The specification was quoted from French Arrêté du 25 novembre 1992 for Silicone Elastomers.




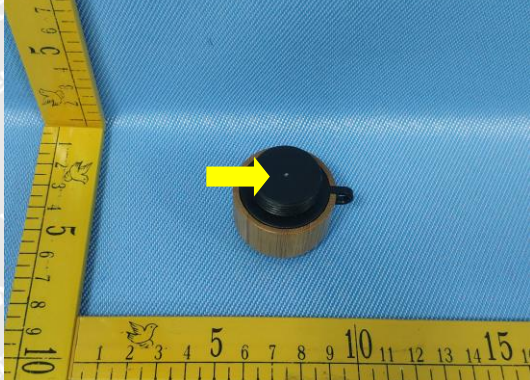
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Sample Photo:



Photograph of parts tested:

No.	Photo of testing part	Parts Description	Client Claimed Material
1		Golden metal	Aluminium
2		Silvery metal	Aluminium
3		Transparent silicone rubber	Silicone rubber (Sample received at 2021-12-13)
4		Black plastic	PP



No.	Photo of testing part	Parts Description	Client Claimed Material
5		Transparent silicone rubber	Silicone rubber (Sample received at 2022-01-04)

===== End of Report =====

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