



TEST REPORT

Report No. : WTF22F03041719A1C
Applicant : Mid Ocean Brands B.V.
Address : 7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan,
Kowloon, Hong Kong
Manufacturer : 114914
Sample Name : RPET cap
Sample Model : MH2101, MH2103, MH2108
Test Requested :

- 1) Determination of Lead content in the submitted sample in accordance with REACH regulation Annex XVII Entries 63 (EC) No. 1907/2006 and the amendment No. 836/2012 and (EU) 2015/628
- 2) Determination of Cadmium content in the submitted sample in accordance with REACH regulation Annex XVII Entries 23 (EC) No. 1907/2006 and the amendment No. 552/2009, No. 494/2011, No. 835/2012 and (EU) 2016/217
- 3) Determination of specified Phthalates content according to Annex XVII Items 51 & 52 of the REACH Regulation (EC) No. 1907/2006 & Amendment No. 552/2009 & No. 2018/2005
- 4) Determine the specified AZO Colorants contents in the submitted sample in according to the Entries 43 in Annex XVII of the REACH Regulation (EC) No.1907/2006 and the Amendment Regulation (EC) No.552/ 2009 & No.126/ 2013 (previously restricted under Directive 2002/61/EC).
- 5) Nickel content requirement in Annex XVII Item 27 of the REACH Regulation (EC) No. 1907/2006 & amendment No.552/2009 (formerly known as Directive 94/27/EC and 2004/96/EC)
- 6) As requested by the applicant, to test Colour Fastness to Rubbing in the submitted sample.

Test Conclusion : Refer to next page (s)
Date of Receipt sample : 2022-03-11 & 2022-04-13
Testing period : 2022-03-11 to 2022-04-22
Date of Issue : 2022-04-24
Test Result : Refer to next page (s)
Note : As specified by client, only test the designated sample.

Prepared By:

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Signed for and on behalf of
Waltek Testing Group (Foshan) Co., Ltd.

Swing Liang

Swing.Liang

Waltek Testing Group (Foshan) Co., Ltd.

<http://www.waltek.com.cn>



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Sample photo:





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Test Results:

1) Lead (Pb)

Test Method: With reference to IEC 62321-5:2013, the analysis was performed by ICP-OES.

Test Item	LOQ (mg/kg)	Results (mg/kg)				Limit (mg/kg)
		No.1	No.2	No.3	No.4	
Lead(Pb)	2	38	ND	96	ND	500
Conclusion	--	Pass	Pass	Pass	Pass	--

Test Item	LOQ (mg/kg)	Results (mg/kg)		Limit (mg/kg)
		No.5+No.6+No.7	No.8+No.9+No.10	
Lead(Pb)	2	ND*	ND*	500
Conclusion	--	Pass	Pass	--

Test Item	LOQ (mg/kg)	Results (mg/kg)			Limit (mg/kg)
		No.11+No.12 +No.13	No.14	No.15	
Lead(Pb)	2	ND*	ND	ND	500
Conclusion	--	Pass	Pass	Pass	--

Note:

- (1) mg/kg = milligram per kilogram
- (2) ND = Not Detected (lower than LOQ)
- (3) LOQ = Limit of quantitation
- (4) Limit of Lead was quoted from REACH regulation Annex XVII Item 63 (EC) No. 1907/2006 and the amendment No. 836/2012 and (EU) 2015/628.
- (5) "*" = Results are calculated by the minimum weight of mixed components.
- (6) The test sample of specimen No.1 is received on the date of 2022-03-11.



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2) Cadmium (Cd)

Test Method: With reference to IEC 62321-5:2013, the analysis was performed by ICP-OES.

Test Item	LOQ (mg/kg)	Results (mg/kg)			
		No.1	No.2	No.3	No.4
Cadmium(Cd)	2	ND	ND	ND	ND
Conclusion	--	Pass	Pass	Pass	Pass

Test Item	LOQ (mg/kg)	Results (mg/kg)	
		No.5+No.6+No.7	No.8+No.9+No.10
Cadmium(Cd)	2	ND*	ND*
Conclusion	--	Pass	Pass

Test Item	LOQ (mg/kg)	Results (mg/kg)	
		No.11+No.12+No.13	No.15
Cadmium(Cd)	2	ND*	ND
Conclusion	--	Pass	Pass

Note:

(1) mg/kg = milligram per kilogram

(2) ND = Not Detected (lower than LOQ)

(3) LOQ = Limit of quantitation

(4) Limit of Cadmium according to REACH regulation Annex XVII Item 23 (EC) No. 1907/2006 and the amendment No. 552/2009, No. 494/2011 and No. 835/2012 and (EU) 2016/217.

Category	Limit (mg/kg)
Wet paint	100
Surface coating	1000
Plastic	100
Metal parts of jewellery and hair accessories	100

(5) “*” = Results are calculated by the minimum weight of mixed components.

(6) The test sample of specimen No.1 is received on the date of 2022-03-11.



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3) Phthalates

Test Method: With reference to EN14372:2004, by Gas Chromatographic-Mass Spectrometric (GC-MS) analysis.

Test Items	LOQ (%)	Results (%)	Limit (%)
		No.5+No.6+No.7	
Benzyl butyl phthalate (BBP)	0.005	ND*	sum of four phthalates < 0.1
Di (2-ethyl hexyl)- phthalate (DEHP)	0.005	ND*	
Dibutyl phthalate (DBP)	0.005	ND*	
Diisobutyl phthalate (DIBP)	0.005	ND*	
Diisodecyl phthalate (DIDP)	0.01	ND*	sum of three phthalates < 0.1
Diisononyl phthalate (DINP)	0.01	ND*	
Di-n-octyl phthalate (DNOP)	0.005	ND*	
Conclusion	--	Pass	--

Test Items	LOQ (%)	Results (%)		Limit (%)
		No.8+No.9+No.10	No.15	
Benzyl butyl phthalate (BBP)	0.005	ND*	ND	sum of four phthalates < 0.1
Di (2-ethyl hexyl)- phthalate (DEHP)	0.005	ND*	ND	
Dibutyl phthalate (DBP)	0.005	ND*	ND	
Diisobutyl phthalate (DIBP)	0.005	ND*	ND	
Diisodecyl phthalate (DIDP)	0.01	ND*	ND	sum of three phthalates < 0.1
Diisononyl phthalate (DINP)	0.01	ND*	ND	
Di-n-octyl phthalate (DNOP)	0.005	ND*	ND	
Conclusion	--	Pass	Pass	--

Note:

DBP= Dibutyl phthalate

BBP= Benzyl butyl phthalate

DEHP= Bis-(2-ethylhexyl)- phthalate

DINP= Di-isononyl phthalate

DNOP= Di-n-octyl phthalate

DIDP= Di-isodecyl phthalate

DIBP= Diisobutyl phthalate

(1) % = percentage by weight

(2) ND = Not Detected or lower than limit of quantitation

(3) LOQ = Limit of quantitation

(4) "<" = less than

(5) The above limit was quoted according to Annex XVII Items 51 & 52 of the REACH Regulation (EC) No.

1907/2006 & Amendment No. 552/2009 & No. 2018/2005 (formerly known as Directive 2005/84/EC) for phthalate content in toys and child care articles.

(6) "*" = Results are calculated by the minimum weight of mixed components.



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4) AZO

Test Method: With reference to BS EN ISO 14362-1: 2017 and BS EN ISO 14362-3: 2017, analysis was performed by Gas Chromatographic Mass Spectrometry (GC-MS)

No.	Amines Substances	CAS No.	Limit (mg/kg)	Result (mg/kg)		
				No.1	No.2	No.3
1	4-Aminobiphenyl	92-67-1	30	ND	ND	ND
2	Benzidine	92-87-5	30	ND	ND	ND
3	4-chloro-o-Toluidine	95-69-2	30	ND	ND	ND
4	2-Naphthylamine	91-59-8	30	ND	ND	ND
5	o-Aminoazotoluene	97-56-3	30	ND	ND	ND
6	2-Amino-4-nitrotoluene	99-55-8	30	ND	ND	ND
7	p-Chloroaniline	106-47-8	30	ND	ND	ND
8	2,4-diaminoanisol	615-05-4	30	ND	ND	ND
9	4,4'-Diaminodiphenylmethane	101-77-9	30	ND	ND	ND
10	3,3'-Dichlorobenzidine	91-94-1	30	ND	ND	ND
11	3,3'-Dimethoxybenzidine	119-90-4	30	ND	ND	ND
12	3,3'-Dimethylbenzidine	119-93-7	30	ND	ND	ND
13	3,3'-Dimethyl-4,4'-diaminodiphenylmethane	838-88-0	30	ND	ND	ND
14	p-cresinin	120-71-8	30	ND	ND	ND
15	4,4'-Methylen-bis-(2-chloroaniline)	101-14-4	30	ND	ND	ND
16	4,4'-Oxydianiline	101-80-4	30	ND	ND	ND
17	4,4'-Thiodianiline	139-65-1	30	ND	ND	ND
18	o-Toluidine	95-53-4	30	ND	ND	ND
19	2,4-Toluylendiamine	95-80-7	30	ND	ND	ND
20	2,4,5 – Trimethylaniline	137-17-7	30	ND	ND	ND
21	o-anisidine	90-04-0	30	ND	ND	ND
22	4-aminoazobenzene	60-09-3	30	ND	ND	ND
23	2,4-Xylidin	95-68-1	30	ND	ND	ND
24	2,6-Xylidin	87-62-7	30	ND	ND	ND
Conclusion		--	--	Pass	Pass	Pass



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No.	Amines Substances	CAS No.	Limit (mg/kg)	Result (mg/kg)	
				No.4	No.11+No.12
1	4-Aminobiphenyl	92-67-1	30	ND	ND*
2	Benzidine	92-87-5	30	ND	ND*
3	4-chloro-o-Toluidine	95-69-2	30	ND	ND*
4	2-Naphthylamine	91-59-8	30	ND	ND*
5	o-Aminoazotoluene	97-56-3	30	ND	ND*
6	2-Amino-4-nitrotoluene	99-55-8	30	ND	ND*
7	p-Chloroaniline	106-47-8	30	ND	ND*
8	2,4-diaminoanisol	615-05-4	30	ND	ND*
9	4,4'-Diaminodiphenylmethane	101-77-9	30	ND	ND*
10	3,3'-Dichlorobenzidine	91-94-1	30	ND	ND*
11	3,3'-Dimethoxybenzidine	119-90-4	30	ND	ND*
12	3,3'-Dimethylbenzidine	119-93-7	30	ND	ND*
13	3,3'-Dimethyl-4,4'-diaminodiphenylmethane	838-88-0	30	ND	ND*
14	p-cresinin	120-71-8	30	ND	ND*
15	4,4'-Methylen-bis-(2-chloroaniline)	101-14-4	30	ND	ND*
16	4,4'-Oxydianiline	101-80-4	30	ND	ND*
17	4,4'-Thiodianiline	139-65-1	30	ND	ND*
18	o-Toluidine	95-53-4	30	ND	ND*
19	2,4-Toluyldiamine	95-80-7	30	ND	ND*
20	2,4,5 – Trimethylaniline	137-17-7	30	ND	ND*
21	o-anisidine	90-04-0	30	ND	ND*
22	4-aminoazobenzene	60-09-3	30	ND	ND*
23	2,4-Xylidin	95-68-1	30	ND	ND*
24	2,6-Xylidin	87-62-7	30	ND	ND*
Conclusion		--	--	Pass	Pass

Note:

- ND = Not Detected or lower than limit of quantitation
- mg/kg=Milligram per kilogram
- Limit of quantitation (mg/kg): Each 5mg/kg
- The CAS-numbers 97-56-3 and 99-55-8 are further reduced to CAS-numbers 95-53-4 and 95-80-7.
- AZO colorants that are able to form 4-aminoazobenzene, generate under the condition of this method aniline and 1,4-phenylenediamine. The presence of these colorants cannot be reliably ascertained without additional information, e.g. the chemical structure of the colorant used.
- The CAS-numbers 95-68-1 and 87-62-7 are not proscribed under REACH Regulation (EC) No 1907/2006
- “*” = Results are calculated by the minimum weight of mixed components.
- The test sample of specimen No.1 is received on the date of 2022-03-11.



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5) Nickel release

Test method: With reference BS EN1811: 2011+A1:2015, Nickel content was determined by Inductively Coupled Argon Plasma Spectrometry

Item No.	Sample Area (cm ²)	Volume of Test Solution(ml)	Nickel release (µg/cm ² /week)				Conclusion
			Trial 1	Trial 2	Trial 3	Average	
No.14	10.60	15	ND	ND	ND	ND	Pass

Note:

- (1) µg/cm²/week = microgram per square centimetre per week
- (2) Limit of quantitation = 0.05 µg/cm²/week
- (3) ND = Not Detected or lower than limit of quantitation
- (4) Interpretation of test results:

Type of sample	Nickel Release(µg/cm ² /week)	
	Pass	Fail
Other components in direct and prolonged contact with the skin	<0.88	≥0.88
Post assemblies and body piercings (Post assemblies which are inserted into pierced parts of the human body)	<0.35	≥0.35

6) Colour Fastness to Rubbing

Colour Fastness to Rubbing					
(ISO 105-X12: 2016; Size of rubbing finger: 16mm diameter.)					
		No.1	No.2	No.3	Client's Limit
Length	Dry staining	4-5	4-5	4-5	2-3
	Wet staining	3	3-4	4-5	2-3
Width	Dry staining	4-5	4-5	4-5	2-3
	Wet staining	3	3-4	4-5	2-3
Conclusion		Pass	Pass	Pass	--

Colour Fastness to Rubbing					
(ISO 105-X12: 2016; Size of rubbing finger: 16mm diameter.)					
		No.4	No.11	No.12	Client's Limit
Length	Dry staining	4-5	4-5	4-5	2-3
	Wet staining	3	4-5	4	2-3
Width	Dry staining	4-5	4-5	4-5	2-3
	Wet staining	3	4-5	4	2-3
Conclusion		Pass	Pass	Pass	--

Note:

- (1) Grey Scale Rating is based on the 5-step scale of 1 to 5, where 1 is bad and 5 is good.
 - (2) The test sample of specimen No.1 is received on the date of 2022-04-13.
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Description for Specimen:

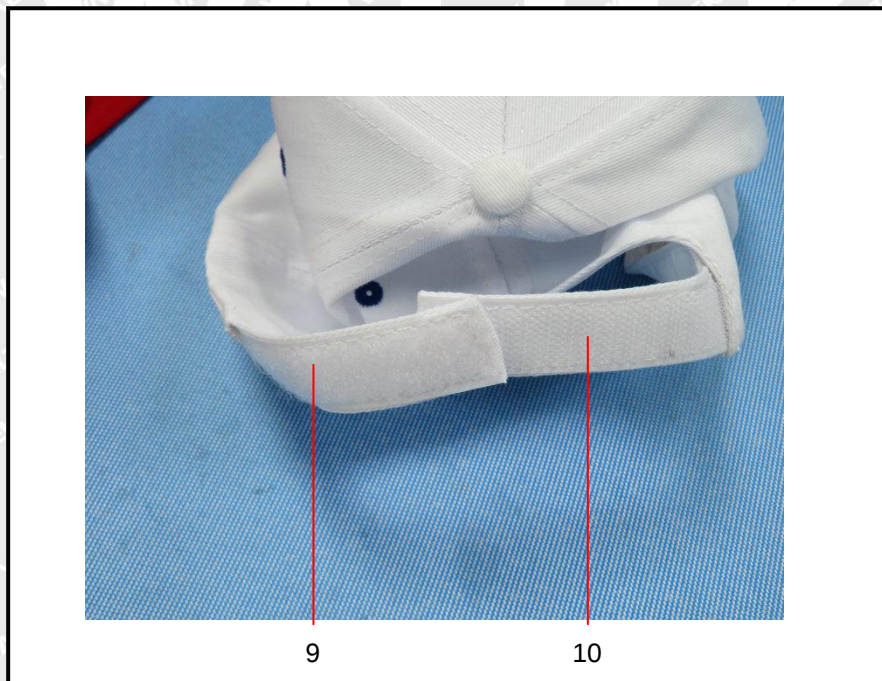
- No.1: Black fabric cap with white sewing thread
- No.2: Red fabric cap with blue sewing thread
- No.3: White fabric cap with green sewing thread
- No.4: Blue fabric cloth
- No.5: Black plastic hook of VELCRO
- No.6: Black plastic loop of VELCRO
- No.7: Red plastic loop of VELCRO
- No.8: Red plastic hook of VELCRO
- No.9: White plastic loop of VELCRO
- No.10: White plastic hook of VELCRO
- No.11: Black fabric
- No.12: Red fabric
- No.13: White fabric
- No.14: Silvery metal cap
- No.15: White fibrous wire

Photograph of parts tested:



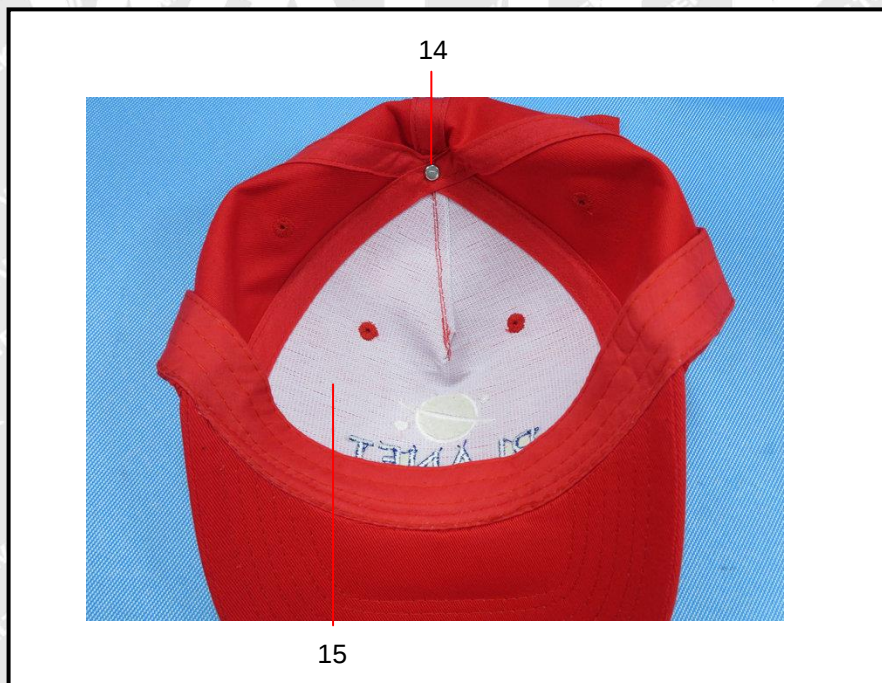


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