



# TEST REPORT

**Report No.** ..... : WTF22F10201554A1R1C  
**Applicant** ..... : Mid Ocean Brands B.V.  
**Address** ..... : 7/F., Kings Tower, 111 King Lam Street, Cheung Sha Wan,  
Kowloon, Hong Kong  
**Manufacturer** ..... : 112451  
**Sample Name** ..... : Baseball cap  
**Sample Model** ..... : KC1464  
**Test Conclusion** ..... : Refer to next page (s)  
**Date of Receipt sample** ..... : 2022-10-11 & 2022-12-28 & 2023-01-12  
**Testing period** ..... : 2022-10-11 to 2022-10-31 & 2022-12-28 to 2023-02-03  
**Date of Issue** ..... : 2023-02-06  
**Test Result** ..... : Refer to next page (s)  
**Note** ..... : 1) As specified by client, only test the designated sample.  
2) As per client's requirement, results of specimen from No.1  
to No.6 are quoted from report No.WTF22F10201554C  
specimen from No.1 to No.6.

**Prepared By:**

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

*Swing Liang*

Swing.Liang



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- 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) As specified by client, determination of the free and hydrolysed formaldehyde content in submitted sample
  - 6) 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)
  - 7) As requested by the applicant, to test Colour Fastness to Rubbing in the submitted sample.

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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	
Lead(Pb)	2	ND	ND	ND	500
Conclusion	--	Pass	Pass	Pass	--

Test Item	LOQ (mg/kg)	Results (mg/kg)			Limit (mg/kg)
		No.4	No.5	No.6	
Lead(Pb)	2	ND	90	ND	500
Conclusion	--	Pass	Pass	Pass	--

Test Item	LOQ (mg/kg)	Results (mg/kg)			Limit (mg/kg)
		No.7+No.8	No.9+No.10	No.11	
Lead(Pb)	2	ND*	ND*	ND	500
Conclusion	--	Pass	Pass	Pass	--

Test Item	LOQ (mg/kg)	Results (mg/kg)			Limit (mg/kg)
		No.12+No.13	No.14+No.15	No.16	
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.7 is received on the date of 2022-12-28.





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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
Cadmium(Cd)	2	ND	ND	ND
Conclusion	--	Pass	Pass	Pass

Test Item	LOQ (mg/kg)	Results (mg/kg)		
		No.7+No.8	No.9+No.10	No.11
Cadmium(Cd)	2	ND*	ND*	ND
Conclusion	--	Pass	Pass	Pass

Test Item	LOQ (mg/kg)	Results (mg/kg)		
		No.12+No.13	No.14+No.15	No.16
Cadmium(Cd)	2	ND*	ND*	ND
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 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.7 is received on the date of 2022-12-28.



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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.2	
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	
<b>Conclusion</b>	--	<b>Pass</b>	--

#### 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.



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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.3
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-diaminoanisole	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





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No.	Amines Substances	CAS No.	Limit (mg/kg)	Result (mg/kg)	
				No.7+No.8	No.9+No.10
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





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No.	Amines Substances	CAS No.	Limit (mg/kg)	Result (mg/kg)	
				No.12+No.13	No.14+No.15
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.7 is received on the date of 2022-12-28.

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## 5) Formaldehyde

Test Method: With reference to ISO14184-1: 2011, analysis was performed by UV-VIS

Test Item	Unit	Result			LOQ	Client's Limit
		No.1	No.3	No.7		
Formaldehyde (CH <sub>2</sub> O)	mg/kg	20	ND	ND	16	75
Conclusion	--	Pass	Pass	Pass	--	--

Test Item	Unit	Result			LOQ	Client's Limit
		No.8	No.9	No.10		
Formaldehyde (CH <sub>2</sub> O)	mg/kg	ND	ND	ND	16	75
Conclusion	--	Pass	Pass	Pass	--	--

Test Item	Unit	Result			LOQ	Client's Limit
		No.11	No.12	No.13		
Formaldehyde (CH <sub>2</sub> O)	mg/kg	22	ND	ND	16	75
Conclusion	--	Pass	Pass	Pass	--	--

Test Item	Unit	Result			LOQ	Client's Limit
		No.14	No.15	No.16		
Formaldehyde (CH <sub>2</sub> O)	mg/kg	47	ND	25	16	75
Conclusion	--	Pass	Pass	Pass	--	--

### Note:

- ND = Not Detected or lower than limit of quantitation
- mg/kg =milligram per kilogram=ppm
- LOQ = Limit of quantitation
- The test sample of specimen No.7 is received on the date of 2022-12-28.





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## 6) 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 <sup>2</sup> )	Volume of Test Solution(ml)	Nickel release (μg/cm <sup>2</sup> /week)				Conclusion
			Trial 1	Trial 2	Trial 3	Average	
No.4	11.68	15	ND	ND	ND	ND	Pass
No.5	13.86	15	ND	ND	ND	ND	Pass
No.6	12.36	15	ND	ND	ND	ND	Pass

### Note:

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

Type of sample	Nickel Release(μg/cm <sup>2</sup> /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



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## 7) Colour Fastness to Rubbing

Colour Fastness to Rubbing							
(ISO 105-X12: 2016; Size of rubbing finger: 16mm diameter.)							
		No.1	No.3	No.7	No.8	No.9	Client's Limit
Length	Dry staining	4-5	4-5	4-5	4	4	2-3
	Wet staining	4-5	4-5	2-3	3	3	2-3
Width	Dry staining	4-5	4-5	4-5	4	4	2-3
	Wet staining	4-5	4-5	2-3	3	3	2-3
Conclusion		Pass	Pass	Pass	Pass	Pass	--

Colour Fastness to Rubbing							
(ISO 105-X12: 2016; Size of rubbing finger: 16mm diameter.)							
		No.10	No.12	No.13	No.14	No.15	Client's Limit
Length	Dry staining	4	4-5	4-5	4-5	4-5	2-3
	Wet staining	2-3	4	4-5	4	4	2-3
Width	Dry staining	4	4-5	4-5	4-5	4-5	2-3
	Wet staining	2-3	4	4-5	4	4	2-3
Conclusion		Pass	Pass	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.7 is received on the date of 2023-01-12.

### Description for Specimen:

Specimen No.	Specimen Description
1	Grey main fabric
2	White net fabric
3	Dark grey fabric rim
4	Silvery metal cap
5	Coppery metal buckle
6	Coppery metal eyelet
7	Black main fabric
8	Green main fabric
9	Red main fabric
10	Blue main fabric
11	White main fabric

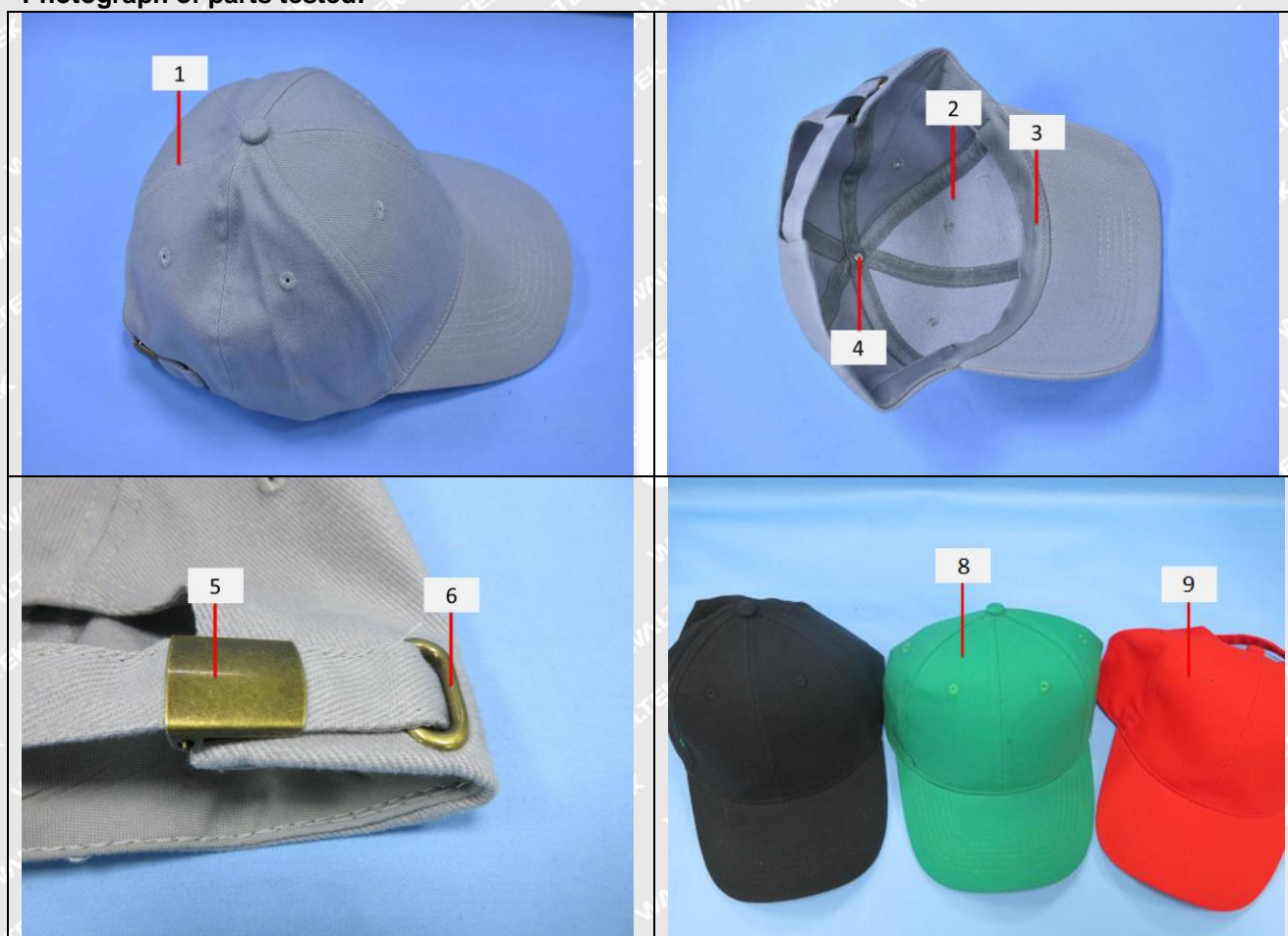




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Specimen No.	Specimen Description
12	Blue fabric rim
13	Green fabric rim
14	Black fabric rim
15	Red fabric rim
16	White fabric rim

**Photograph of parts tested:**





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Remarks:

1. The results shown in this test report refer only to the sample(s) tested;
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===== End of Report =====

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