



TEST REPORT

Reference No.: WTF18F04109341R1C
Applicant: Mid Ocean Brands B.V.

Address: Unit 201 2/F., Laford Centre, 838 Lai Chi Kok Road, Cheung Sha Wan,

Kowloon, Hong Kong.

Manufacturer : 106613

Sample Name: Yoyo with light

Model No. : IT3854

Test Requested...... : In accordance with the RoHS Directive 2011/65/EU and its

amendment (EU) No. 2015/863.

mechanical sample preparation

2) With Reference to IEC 62321-3-1:2013, screening - Lead, mercury, cadmium, total chromium and total bromine by X-ray fluorescence

spectrometry

3) With reference to IEC 62321-4:2013+AMD1:2017 CSV, determination of Mercury by ICP-OES

4) With reference to IEC 62321-5:2013, determination of Lead and Cadmium by ICP-OES

5) With reference to IEC 62321-7-2: 2017 and IEC 62321-7-1: 2015, determination of Hexavalent Chromium by UV-Vis

6) With reference to IEC 62321-6:2015, determination of PBBs and PBDEs by GC-MS

7) With reference to IEC 62321-8:2017, determination of Phthalates content by GC-MS.

Zhang/ Lab Manager

Test Conclusion: Pass (Based on the performed tests on the submitted samples, the

results comply with the RoHS Directive 2011/65/EU and its

amendment (EU) No. 2015/863)

Date of Receipt sample... : 2018-04-24 & 2019-03-14

Date of Test : 2018-04-24 to 2018-04-28 & 2019-03-14 to 2019-03-25

Date of Issue : 2019-03-25

Test Result: Please refer to next page (s)

Remarks:

The results shown in this test report refer only to the sample(s) tested; this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:

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Test Results:

1. Lead, Mercury, Cadmium, Hexavalent Chromium, PBBs and PBDEs

Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
n,		Cd Cd	BL	"MULL WAY WAY	10,0
TEX	TEX STEEL STEEL STATE W	Pb	BL	A ST ST ST	TEX
1	Transparent plastic shell	Hg 🗡	BL	NA	Comply
<u></u>	TEX ITEX STEET STIFF WAY	Cr	BL	- the second	LEX X
, an	and my my my	Br	Ø BLØ	LIER WILL WHILE	
	of the text of the state	Cd	BL	4	Comply
MALI	mer mer my m	Pb	BL	WIEK OLIER WILLE WA	
2	Blue transparent plastic cover	Hg	JI BL J	NA	
WITE	white and whit and	Cr	BL	TE LIEK SLIEK MIT	MILLE
	at at let let	Br	Mr. Bru	me m. m.	
TEL	WITH MILL MAN MAN MAN	Cd	BL .	* LET JET JET	INLIE NA
7		Pb	BL	are in in	20, 20,
3	White fibrous string	Hg	BL	NA NA	Comply
-ML	24, 20,	Cr	BL	Will MULL MILL M	
	t lifet alifet mir anit	Br	BL	L at at	
M	Silvery metal screw	Cd	BL	ILL WALL MALL WAS	Comply
EX		Pb	BL	NA TELL MITTER	
4		Hg	BL		
*		Cr	BL		
. (1)		Br	BL		
	at let tell	Cd	BL	11, 14, 2,	+ 0
	antil whi will be	Pb	L BL	LEK LIEK ALTER III	ILE. WILL
5	Silvery metal screw	Hg	BL	NA NA	Comply
LIER		Cr	BL		
70.	EN AIAIV	Br	BL o	The Mary Mary	70,
TEX	THE TOTAL STREET	Cd	BL	A TEX TEX	LIE O
4		Pb	BL	m in me	211, 21
6	Silvery metal screw	Hg	BL	NA -	Comply
in	An An A	Cr	BL	LILE WALL WALL V	in m
	* TEX LIEX NITER MILE	Br	BL		EX TEX
MUL	m m m	Cd	BL	-LEE WILL MULL MA	Comply
et	TEX TEX TEX STEEL	Pb	an BL	70, 0,	
7	Silvery metal nut	Hg	BL	NA NA	
		Cr	BL	141, 141, 20	
	Hill me me w	Br	BL	t tex tex ties	WILL MY
, "	Silvery metal sheet	Cd	BL	LEK TEK TEK	Comply
		Pb	BL		
8		Hg	BL	MA NA	
TE	THE MITE WALL WALL	Cr	BL	t let let s	EX TIEX
MV	14. 2. 2.	Br	BL	ill war war	M



Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
CLIE	Write Will Must My	Cd	BL	et itet liter ni	ALTE .
111,	the state of the state of	Pb	BL	in the the	70.
9	Silvery metal spring	Hg	BL	NA NA	Comply
		Cr Cr	BL	MUT, MUT, MY	111. 22.
et c	TEX STEEL WITE WALL MA	Br	BL	at let let	
711.		Cd	BL	"ATT MUT: MUT.	Comply
- (d ²	the street while while	Pb	BL	at at all .	
10	Black plastic holder	Hg	BL	NA	
LEX.	TEX LIEX NITER WITER	Cru	BL		t let
JULIA.	me, me, m, m,	Br	BL	ie alien alie anii	Wr. A
*	LEX TEX STEX STEX OF	Cd	M BL	74	et .
ir, "I	ir, Mur, Mur, Mr. M.	Pb	BL A	LIEF OUTER WITE	WUI, MUI
11	Silvery metal bead	Hg	BL	NA	Comply
		Cr	BL	TEX TEX STEEL	
12,	A A A A A A A A A A A A A A A A A A A	Br	BL	m, m, m, m	
LIFE	WITE WALL MAY WALL	Cd	BL	at let let i	Comply
21,	Yellow plastic sleeve	Pb	∠BL (NA H	
12		Hg	BL		
,		Cr	BL		
et .		Br	BL		
	Red rubber gasket	Cd	BL	White White White	Comply
- 6		Pb	BL	iet mit NAmitet un	
13		Hg	BL		
4		Cr	SUBL S		
المارات		Br	BL		
		Cd	BL	20, 20,	Comply
LIEN	Silvery metal pin of LED	Pb	BL	TEN LITER	
14		Hg	BL	NA NA	
×		Cr	BL	LEX LEX LEX	
211		Br	BL	Mitt Mur. Mur.	1, 20,
164	Transparent body of LED	Cd	BL	at at let	Comply
15		Pb	BL	PBBs : ND PBDEs : ND	
		Hg	BL W		
		Cr Cr	BL		
		Br	IN IN		
16	Coppery metal winding	Cd	BL Ø	ntiet while white	Comply
		Pb	BL		
		Hg	BL		
	at let let life	Cr	BL		
	WILL MILL MILL MILL	Br	BL	at let let is	



Part No.	Part Description	on Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
WITE.	with with any are a	Cd	BL	alt the steet all	ALTE.
	t it lit lit	Pb	BL	MUT, My, MI	72.
17	Solder	Hg	BL	NA NA	Comply
		Cr	BL	MUT. MUT. MIL	211 22
EX	TEX WILL WILL MUTE MULT MAN	Br	BL	at let let	TEX LI
7/1	7, 7	Cd	BL	with mur and a	1. 24
	ex lifex writer writer write	Pb	BL	t at at	CEX TEX
18	Orange transparent plastic cover	Hg	BL	NA DE MA	Comply
٨	MULTER WALTER WALTER WALTER	Cry	BL		
in Line		Br	BL	ALTER MITE MALT	
	Silvery metal screw	Cd	BL	NA NA NATER	Comply
		Pb	BL &		
19		Hg	BL		
		Cr	BL		
10		Br	BL		
	RITE WALL WALL WALL	Cd	BL	A TEX TEX	EX OLIER
	7, 7	Pb	BL	in mur mur mur	Comply
20	Black plastic sleeve	Hg	BL	White white white	
		Cr	BL		
EX	TEX STEE STEE	Br	BL		
· ' '	Silvery metal spring	Cd	BL	NA COMPANY	Comply
		Pb	BL		
21 °		Hg	BL		
	LEX TEX TEX STEEL	Cr	JUBL 1	1, 1, 2,	*t
	art ar	Br	BL	TE ALTER ALT	MITTE



Remark:

(1) Results are obtained by EDXRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-VIS (for Cr⁶⁺) and GC-MS (for PBBs, PBDEs) is recommended to be performed, if the concentration exceeds the below warning value according to IEC 62321-3-1: 2013 (unit: mg/kg)

Element	Polymer	Metal	Composite Materials
Cd	BL \leq (70-3 σ) $<$ IN $<$ (130+3 σ) \leq OL	BL ≤ (70-3σ) < IN < (130+3σ) ≤ OL	LOD < IN < (150+3σ) ≤ OL
Pb	BL \leq (700-3 σ) $<$ IN $<$ (1300+3 σ) \leq OL	$BL \le (700-3\sigma) < IN < (1300+3\sigma) \le OL$	BL ≤ (500-3σ) < IN < (1500+3σ) ≤ OL
Hg	$BL \le (700-3\sigma) < IN < (1300+3\sigma) \le OL$	BL ≤ (700-3σ) < IN < (1300+3σ) ≤ OL	BL ≤ (500-3σ) < IN < (1500+3σ) ≤ OL
Cr	BL ≤ (700-3σ) < IN	BL ≤ (700-3σ) <in< td=""><td>BL ≤ (500-3σ) < IN</td></in<>	BL ≤ (500-3σ) < IN
Br	BL ≤ (300-3σ) < IN	- THE THE STATE OF	BL ≤ (250-3σ) < IN

BL= Below Limit

OL= Over Limit

LOD = Limit of Detection

-- = Not Regulated

- (2) "IN" expresses the inconclusive region, and further chemical testing to confirm whether it complies with the requirement of RoHS Directive.
- (3) The XRF screening test for RoHS elements the reading may be different to the actual content in the sample be of non-uniformity composition.
- (4) mg / kg =milligram per kilogram=ppm, based on the dry weight of tested sample.
- (5) ND = Not Detected, less than the value of Method Detection Limit.
- (6) NA = Not Applicable, as the XRF screening test result was below the limit, it was not need to conduct the wet chemical testing.
- (7) MDL= Method Detection Limit in wet chemical test.

Test Items	Pb	Cd	Hg	C	r ⁶⁺	PBB	PBDE
Units	mg/kg	mg/kg	mg/kg	mg/kg	µg/cm ²	mg/kg	mg/kg
MDL	2	2	2	2	0.1	5.00	5

The MDL for single compound of PBBs and PBDEs is 5mg/kg, MDL of Cr⁶⁺ for polymer and composite sample is 2mg/kg and MDL of Cr⁶⁺ for metal sample is 0.1µg/cm².

(8) According to IEC 62321-7-1:2015, determined of Cr⁶⁺ on metal sample by boiling water extraction test method, and result is shown as Positive/Negative.

Boiling water extraction:

Negative = Absence of Cr^{6+} coating, the detected concentration in boiling water extraction solution is less than $0.10ug/cm^2$.

Positive = Presence of Cr⁶⁺ coating, the detected concentration in boiling water extraction solution is greater than 0.13ug/cm².

Information on storage conditions and production date of the tested sample is unavailable and thus Cr⁶⁺ results represent status of the sample at the time of testing.

(9) As per client's requirement, all results of specimen are extracted from report No. WTF18F04109341C.



2. Phthalates (DEHP, BBP, DBP, DIBP)

Test items	Result (mg/kg)	Limit		
with with with my	No.1+No.2+No.3+No.10 ^{\triangle}	No.12+No.18+No.20 [△]	(mg/kg)	
Bis(2-ethylhexyl)-phthalate (DEHP)	<50	W 1050 W 1	1000	
Dibutyl phthalate (DBP)	<50	<50	1000	
Benzylbutyl phthalate (BBP)	<50	<50	1000	
Diisobutyl phthalate (DIBP)	<50	<50	1000	

Test items	Result (mg/kg	Limit	
	No.13	No.15	(mg/kg)
Bis(2-ethylhexyl)-phthalate (DEHP)	<50	<50	1000
Dibutyl phthalate (DBP)	<50	<50	1000
Benzylbutyl phthalate (BBP)	<50	<50	1000
Diisobutyl phthalate (DIBP)	<50	<50	1000

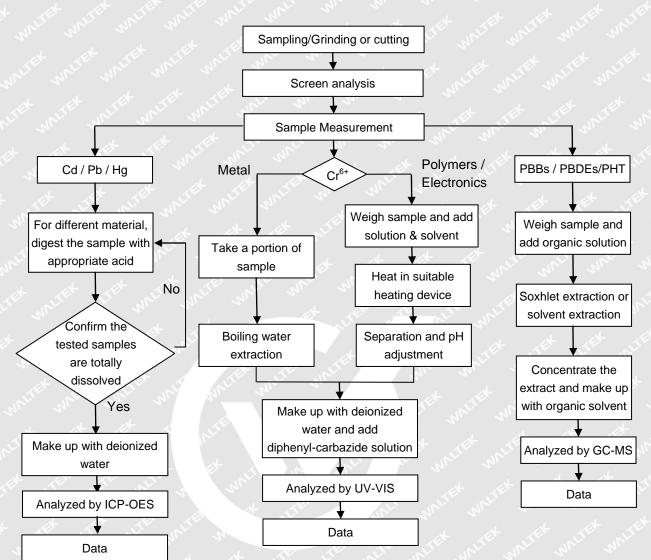
Note:

- (1) "<" = less than
- (2) mg/kg = milligram per kilogram= ppm
- (3) " \triangle " = As client's requirement, the testing was conducted based on mixed components, the test result is for reference only.



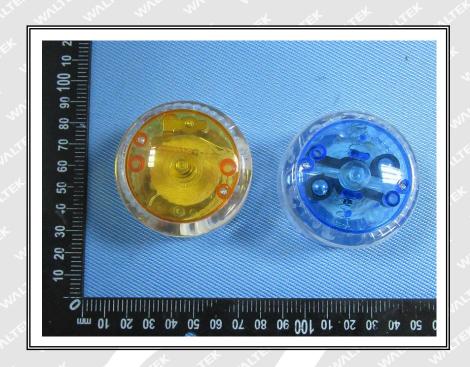
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Measurement Flowchart:



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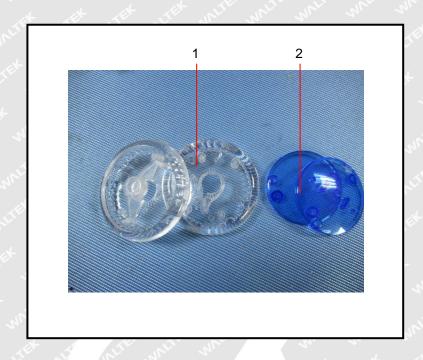
Sample Photo:

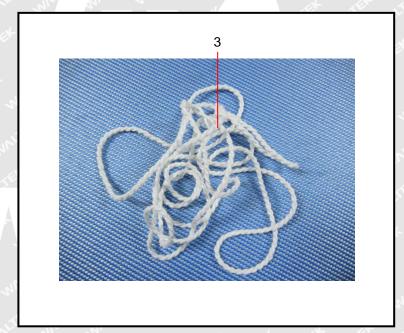




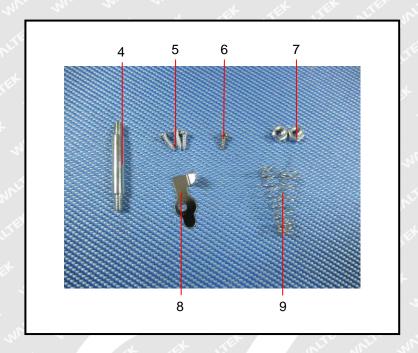
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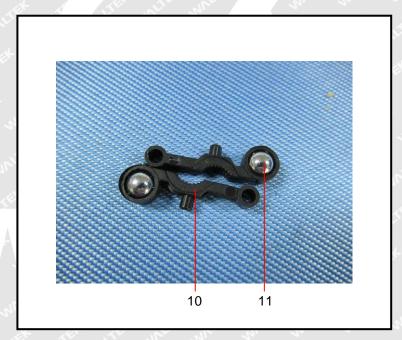
Photograph of parts tested:



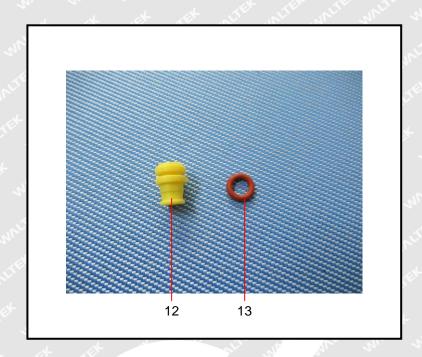


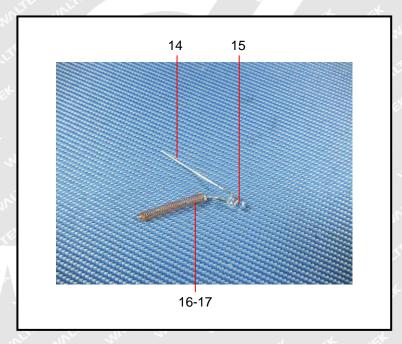










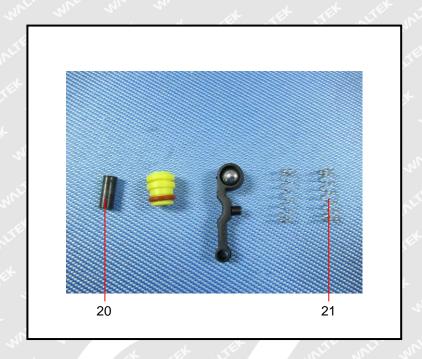












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