



### **TEST REPORT**

Reference No	:	WTF18F09123700C
Applicant	<u>+</u>	Mid Ocean Brands B.V

Hong Kong

Manufacturer ..... : 108694

Sample Name .....: Aluminium stylus pen with light

Model No. ..... : MO9479

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

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, 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

Test Conclusion...... : Based on the performed tests on the submitted samples, the results

comply with the RoHS Directive 2011/65/EU

Date of Receipt sample .... : 2018-09-12

**Date of Test** ...... : 2018-09-12 to 2018-09-19

Date of Issue ...... 2018-09-19

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.

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#### **Test Results:**

Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS
EX		Cd	BL	L A A	1 Et
	mr. mr. m. m.	Pb	BL	et aller wife while	wer, an
1	Silvery metal barrel with red plating	Hg	BL	NA	Comply
	TIE MULL MAY MUE MILE	Cr	BL	TEX LIEX SLIER	NITE WALT
7,		Br	BL	Mar Mr. M. A	
	et site mit unit wat	Cd	BL	at at let	EX LIE
	Milita plactic barral with ailyans	Pb	BL	alit will mar war	211
2	White plastic barrel with silvery coating	Hg	BL	NA	Comply
	Coating	Cr	BL	TE SLIEN MITE WALL	Wr.
	A A THE TEXT OF	Br	BL <sup>m</sup>	14, 25, 2	
ie.	write mer mer an	Cd	BL	* TEX TEX TEX	Will an
	White plactic can with all your	Pb	BL	Wr. Mr. M.	22. 7.
3	White plastic cap with silvery — plating —	Hg	BL	Cr <sup>6+</sup> :ND	Comply
	plating	Cr	IN	White Muli Aut. M	
	the text item is write a	Br	BL		
WILL	Silvery metal clip	Cd	BL	ITEX SITES WITH WALL	Comply
		Pb	BL	111, 14,	
4		Hg	BL	NA NA	
		Cr	BL		
EX		Br	BL	at at at	
	1 24 24	Cd	BL	PLIE WALL WALL O	v. 111.
	EX TEX LIEX OLIES	Pb	BL		et e
5	Off-white plastic sleeve	Hg	BL	NA NA	Comply
		Cr	BL	14 24 24	
		Br	BL	- CELLIER CIE	, CLIE
	SA A A A Y A T	Cd	BL	r. Mur. My	20,
	THE STATE OF	Pb	BL	I LET TEX	TEX
6	White plastic cap	Hg	BL	NA NA	Comply
		Cr	BL		
الم	in my my	Br	→ BL→	TEX LIFE WILL I	LI MAL
	White plastic refill	Cd	BL	M M M	EX WILEX
		Pb	BL	et tet tet t	
7		Hg	BL	NA NA	Comply
		Cr	BL		WALLEK W
Nr.		→ Br	BL	it with with wall	
×	Blue ink	Cd	BL		Comply
		Pb	BL	t liet aller aller	
8		Hg	BL	NA	
	TEL WILL MULL MULL MILL	Cr	BL	LET TEX TEX	IFE OLIFE
	70. 2	Br	BL	W. M. MUE MUE MIL	20,







Part No.	Part Description	Result of XRF		Result of Wet Chemical Testing (mg/kg)	Conclusion on RoHS	
ct		Cd	BL	4. 4	Et	
	ner me me m	Pb	BL	IT SLIER WIEL WILL	white we	
9	Black soft plastic cap	Hg	BL	NA	Comply	
	LIE WILL MALL MALL MAN	Cr	BL	TEX TEX LIER	ALTE MIT	
7,		Br	BL	" The The The	, 2,	
	alter pette aper when	Cd	BL	at at let a	EK LIE	
Me	111, 11, 1	Pb	BL	nit unit whi whi	M	
10	Silvery metal sleeve	Hg	BL	Cr <sup>6+</sup> :Negative	Comply	
W.	The Mr Mr Mr	Cr	/IN	IE SLIER WITE WITE	Will 2	
1	at at let let	Br	M BL	211, 20, 2,	*	
IE.	Will My My My	Cd	L BL	t let jet jet	WILL WA	
1	t st st	Pb	BL	Wr. Mr. Mr.	20, 70,	
11	White plastic sleeve	Hg	BL	NA NA	Comply	
11/	The An A	Cr	BL	write while when we	The same	
	t tex itex its writer	Br W	BL		et et	
WILL	Mur. Mr. Mr.	Cd	BL	it alter with whi	Comply	
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	At the state of	Pb	BL	1/11/2/11/2/2/		
12	White plastic sleeve	Hg	BL	A NACTOR		
	r. t	Cr	BL	wer, are my	20, 2,	
EX	ITEK ALTER KLIFF ! KNA	Br	BL	at at let	JEK J	
11	211 211	Cd	BL	NITE WALL WALL V	V. 111.	
	EK TEK TEK LITER	Pb	BL	DDD- ND	et et	
13	Transparent body of LED	Hg	BL	PBBs :ND PBDEs :ND	Comply	
		Cr	BL	PDDE5.ND		
LIE	The state of the s	Br	IN	to the tipe	e alter.	
711		Cd	BL	r. Mu. M.	10, 1	
TEX		Pb	BL	A LET	TEX	
14	Silvery metal pin of LED	Hg	BL	NA	Comply	
	LEX TEX STEX STEX SIN	Cr	BL	<i>i</i> n	at a	
10	in the the	Br	BL	TEX STEE STEE	LIL MALIN	
		Cd	BL	1 24 24		
	White Wall war wal	Pb	BL	DDD ND	EX WILE.	
15	Grey plastic sheet of switch	Hg	BL	PBBs :ND PBDEs :ND	Comply	
INLIEK		Cr	BL	FDDES .ND		
	Mr. Mr. Mr. M.	⇒ Br	IN	ie nite unit wall	Mr. M	
IEK .	it it it it it	Cd	BL	71, 2	Comply	
	ris mer me me a	Pb	→ BL	- TEK STEK STEK		
16	White plastic sheet of switch	Hg	BL	NA NA		
	EL WILL MULL MULL MILL	Cr	BL	et let let	TER OUTE	
11/2	21, 2	Br	BL	TO THE WALL WALL WA	211	



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Part No.	Part Description	n Result of XRF		Result of Wet Chemical Testing (mg/kg)	ical Conclusion on RoHS	
-EX	THE THE LITER NATE OF	Cd	BL	1 1 1	et.	
	her are any are	Pb	BL	ALTER NITE WITH		
17	Black plastic base of switch	Hg	BL	NA	Comply	
	TIE MULL MULL MULL MILL	Cr	BL	TEX LIEX LIFE		
72,		Br	BL	Wer Mer Mir a		
٠ ان	ALTE MILE WALL WALL	Cd	BL	at at at .	Comply	
Mer	in in	Pb	BL	tip with Mur. Mu		
18	Silvery metal pin of switch	Hg Silver	BL	NA		
Wr.	mer me me	Cr	BL	E SLIER MITE WALL		
	A SH SET SET	Br	M BL	111, 12,		
16.	write along the along the	Cd	BL A	TEX TEX LIE	WILL WI	
		Pb	BL	Wr. Myr. Mr.		
19	Silvery metal strip of switch	Hg	BL	THE WALL W	Comply	
- n		Cr	BL			
		Br	BL			
WILL	My My MI	Cd	BL	ex sites with and		
٠. ا	at let a life	Pb	BL I			
20	Golden metal sheet of switch	Hg	BL	NA NA	Comply	
	The state of the s	Cr	BL	MUT. MUT. MIL		
CEL	TEX SITES NITE ONLY	Br	BL	the set set	TEX II	
1/1	Silvery metal spring of switch	Cd	BL	ett vill with with	Comply	
		Pb	BL			
21		Hg	BL			
LIE	et et tet tet	Cr	MBL M	211, 22,		
	at an an	Br	BL	- CEY TEX ITE		





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(1) Results are obtained by EDXRF for primary screening, and further chemical testing by ICP (for Cd, Pb, Hg), UV-VIS (for Cr<sup>6+</sup>) 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 ≤ (70-3σ) < IN < (130+3σ) ≤ OL	BL ≤ (70-3σ) < IN < (130+3σ) ≤ OL	$LOD < IN < (150+3\sigma) \le OL$
Pb	$BL \le (700-3\sigma) < IN < (1300+3\sigma) \le OL$	$BL \le (700-3\sigma) < IN < (1300+3\sigma) \le OL$	BL ≤ (500-3σ) < IN < (1500+3σ) ≤ OL
Hg	$BL \le (700-3\sigma) < IN < (1300+3\sigma) \le OL$	$BL \le (700-3\sigma) < IN < (1300+3\sigma) \le OL$	BL ≤ (500-3σ) < IN < (1500+3σ) ≤ OL
Cr	BL ≤ (700-3σ) < IN	BL ≤ (700-3σ) <in< td=""><td>BL ≤ (500-3σ) &lt; IN</td></in<>	BL ≤ (500-3σ) < IN
Br	BL ≤ (300-3σ) < IN	E WALLE WALLE WALL W	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) ppm = mg / kg, 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	Cr <sup>6+</sup>		PBB	PBDE
	Units	mg/kg	mg/kg	mg/kg	mg/kg	μg/cm <sup>2</sup>	mg/kg	mg/kg
5	MDL	2.50	2	2	2	0.1	5	5 4

The MDL for single compound of PBBs and PBDEs is 5mg/kg, MDL of Cr<sup>6+</sup> for polymer and composite sample is 2mg/kg and MDL of Cr<sup>6+</sup> for metal sample is 0.1µg/cm<sup>2</sup>.

(8) According to IEC 62321-7-1:2015, determined of Cr<sup>6+</sup> on metal sample by boiling water extraction test method, and result is shown as Positive/Negative.

Boiling water extraction:

Negative = Absence of Cr<sup>6+</sup> coating, the detected concentration in boiling water extraction solution is less than 0.10ug/cm<sup>2</sup>.

Positive = Presence of Cr<sup>6+</sup> coating, the detected concentration in boiling water extraction solution is greater than 0.13ug/cm<sup>2</sup>.

Information on storage conditions and production date of the tested sample is unavailable and thus Cr<sup>6+</sup> results represent status of the sample at the time of testing.

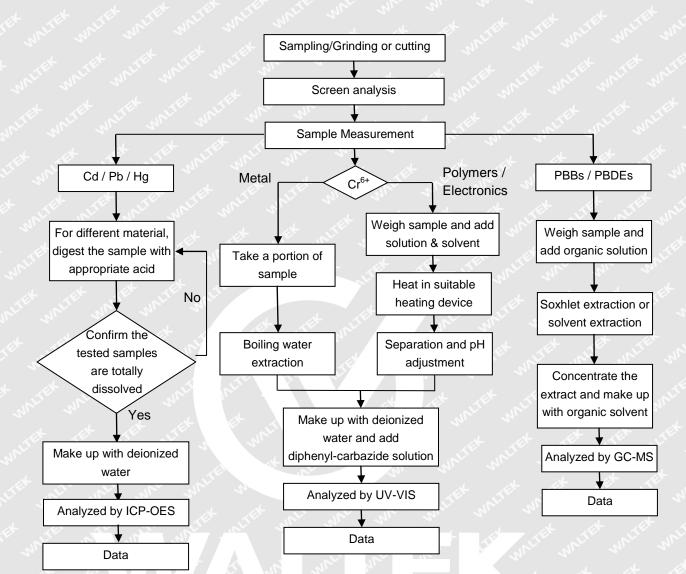
(9) The testing standard "IEC62321-7-2:2017" does not been accredited by CNAS.

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#### **Measurement Flowchart:**



#### **Test Sample Photo:**



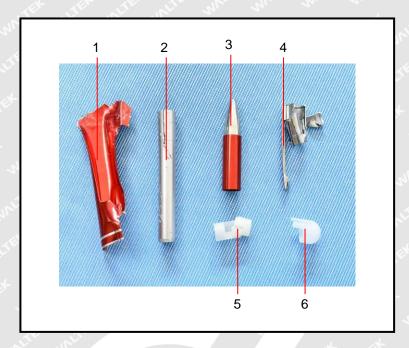


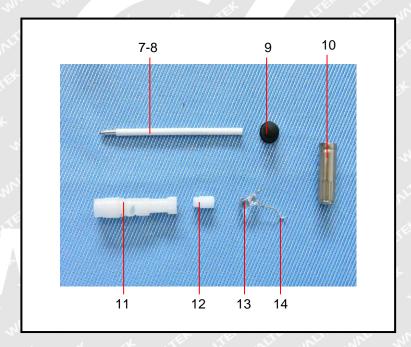
#### Product pictures provided by client:



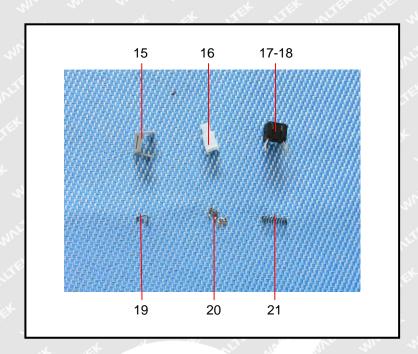
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#### Photograph of parts tested:









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

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